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WHAT IS THE PRESENT CONSENSUS OF OPINION AS TO THE MOST IMPORTANT PROBLEMS IN PREPARATORY AND COLLEGIATE EDUCATION?

The qualifications I possess for this service, according to the committee which appointed me, seem to be ignorance of the present condition of affairs as regards entrance requirements in the controlling universities, and gross uncertainty as to what should be done for the future. The first will enable me to narrate without any prejudice matters of fact. The second will permit me to express my doubts in so persuasive a manner as to compel conviction.

The most recent authoritative literature on the subject consists of the reports of the Conferences on Uniform Entrance Requirements, held during the first half of 1896, of six large universities and the associated schools, and the published statements of certain of these universities concerning their special requirements for the future.

The changes enumerated will begin to take effect in June 1898. There seems to be no doubt that their consequences will be important and far reaching.

Hundreds of teachers have read these reports, and scores of schools have already modified their curricula and their methods of teaching to conform to them. There have been renewed efforts to make the school courses yield power rather than knowledge, systematized knowledge rather than isolated knowl-

edge, the development of judgment and habits of good thinking rather than memory. Reënforced as these recommendations will be by examinations given in conformity with their precepts, it is not too much to say that a beneficent revolution will be brought about, affecting first the college preparatory schools and through them, on one side the other secondary and the primary schools of the country, and on the other the colleges not included in the inner circle of the six. It will take a little time to make the necessary adjustments, and it is not too early to begin.

In a general way the changes are in accord with what every one who appreciates the demands of real education must approve. They deal with the intellectual habits of the individual student rather than with the preparation of definite textbook work. They encourage sight reading and conversation in foreign languages, abundance of laboratory work in science with accompanying notebooks, systematized parallel reading in history, and the attainment of power everywhere. When we add to them the reforms already practically triumphant in the teaching of English, they point to a better day than America has ever seen in the matter of secondary education.

When one for the first time examines these innocent looking reports, side by side with the published requirements of the ordinary good college, they do not seem to necessitate any considerable advance of age or preparation. Something is said about *minimum* requirements, and the demands made seem elastic and adaptable, so that it might be supposed that they would leave the subject about where they found it, as to amount required, each college taking what it chose, and that the only effect would be to encourage the right sort of teaching and uniformity up to a certain point. These effects they will undoubtedly produce, and these are their blessed fruition. But these are not all.

It may be that all the universities represented in the syndicate did not expect any other results. Indeed there is reason to believe that some connected with the movement were sur-

prised at certain visible consequences, and were engaged in stoutly maintaining the virtues of a low standard of admission while requiring a high one.

But for some reason the reports were found to contain the germs of consequences other than uniformity and good teaching. When the schools were told that they must teach languages to provide for sight translations of considerable difficulty, mathematics to give power to work out rather intricate problems of algebra and geometry, history so as to read all around the era studied and know its causes and consequences, and so on through all the list, excellent as they recognized these things to be, they found it indispensable to have more time. They were not generally loath to take it. It gave them another year of interesting and profitable work. Already some schools have added or announced an additional year, and among the demands Dr. Sachs expects to make is "a fuller allotment of time" for secondary instruction. This is the result concerning which there may be most argument.

The protests which have been filed for a few years past against the advanced age of graduation from college are many and potential. It is *not* a good thing that in order to secure a college degree, a professional education and a small income, a man must wait till he is thirty. It means unwholesome limitation of the educated professional men to the class of the well-to-do. It means, moreover, the omission of the college course in numerous instances. Nor will free tuition and scholarships solve the question, for there yet remain the problems of maintenance and enforced celibacy. The presidents of at least two of the universities uniting in the conferences have forcibly presented the issue, and the present condition is so unsatisfactory as to find few defenders.

The difficulty is usually supposed to lie in the primary and secondary schools, and in the family and social arrangements of their boys. That these boys do not reach the same stage of advancement at the same age as those of France, Germany, and Switzerland, has been frequently pointed out and is evident by a

comparison of curricula. Thus the normal boy of the French Lycée of sixteen or seventeen is reading in Greek, selections from Homer, Sophocles, Plato, and Demosthenes; in Latin, from Lucretius, Vergil, Cicero, Livy, and Tacitus; has a fairly good knowledge of English or German, gained by eight years' study, and an excellent one of French, knows pretty well his algebra and geometry, plane and solid, and has made considerable study of at least one science. In short he is ready for a good American college. His American brother of the same average advancement is two years older.

The causes of the difference usually given are various. The simpler system of weights and measures saves time for the French boy, as well as the simpler spelling of the language. These advantages can hardly, under present conditions, be realized in our schools. More potent are, probably, three other causes:

1. The French curriculum is the work of the best experts of the nation. There is no duplication. The different parts supplement and support each other. The gradation is perfect, and the boy passes, without break and with a thread of continuity and relationship weaving all the courses together, from the kindergarten to the university.

2. The French teaching is trained teaching by selected teachers. They have all learned something, at least about elementary ideas of teaching. All crudities and great weaknesses are weeded out in their excellent normal schools, which prepare their teachers most efficiently for the work.

3. Education is a more serious and important thing than with us. The school day lasts from 8:00 to 5:30 o'clock, five and one-half days in the week, and about 220 full school days in the year. The length of a college preparatory year about Philadelphia is from 160 to 170 days of four or five hours each. Two French years are equivalent to three American years in time and energy given to intellectual education, and, I presume, in intellectual progress.

It may be said, and I suppose with truth, that the American

boy gains physical, social, and moral advantages denied to his more closely worked French brother. I do not gainsay it; I only ask whether our material is of such tender stuff that it needs 200 holidays out of 365 in a year; whether the shortening of school terms has not gone on out of all proportion to the legitimate demands of the boy; whether, without sacrificing health or reasonable sport or social development or any other proper diversion, we might not make their intellectual pursuits in the minds of our preparatory students (and, indeed, also college students) a more serious part of life to which other interests should be sacrificed.

I have been told that in Russia there are 180 legal holidays in a year and that it requires a Russian workman one day to recover from the dissipations of each legal holiday. Is there anything suggestive in this as to the condition of some educational institutions?

It is true that a school without physical or other outside organizations and ambitions is not usually a desirable school, and, moreover, might not be in this country of the all-powerful boy a popular or profitable school. But I would like to do something to rescue and exalt the really ambitious and promising student from the herd of athletes and musicians in which he is now lost. I would like to make it felt that the real hero is the intellectual rather than the physical leader, and that the much maligned "grind" is, in many cases, the boy with a future. Will not this be in the long run to the great advantage of athletic interests with which I am in great sympathy? Nothing ever prospers permanently by being exalted into a place to which it has no title.

In this connection I think someone needs to say a word about the lack of intellectual ambition which seems so conspicuous in many young men well prepared for college. Instead of an eagerness to occupy a fascinating field just opening before them, a keen appreciation of the nobility of the possession of the culture and knowledge which may be theirs, there is evident, and I judge from no single college, a disposition to consider

that the battle has been won in the passage of the entrance examinations and that now they are to have their reward in the social and athletic activities of college life. A certain amount of this is unavoidable, but, except in the case of those students who come from isolated country schools under great stress of poverty, it is lamentable to see the indifference with which many excellent students regard their intellectual opportunities. Many recover in later years, but time is lost and enthusiasm frittered away before the recovery begins. May it not be that the energies of the teacher are, almost inevitably with our present arrangements, too exclusively employed in technical preparation, which destroys interest and is the foe of exalted ambition; and that the colleges too suddenly throw upon the boys a liberty for which they can have no previous training.

Theoretically the certificate system was to destroy this evil. It was believed, and in many cases rightly, that the preparation for an external examiner, the endless grind over old papers, the years devoted to the object, not of securing an education, but of passing an examination, were fatal to generous enthusiasm and would create a contentment with poor achievements when the goal was reached. Today I believe we are suffering from this evil in a serious form. The certificate system, however, as often employed, has probably proven itself to possess other evils scarcely less serious. It has so often fallen into deserved discredit that some colleges which have adopted it are finding it necessary to change, preferring not to encounter the reputation of opening an easy way into their membership. If, therefore, the examinations conducted by outside bodies are inevitable, would it not be well to place the most stimulating men in contact with the boys during the last school year and first college year.

I certainly have no disposition to cast the whole blame for this state of affairs upon the schools. The colleges have, probably, an equal share to be responsible for, and the social ideas of the patrons a still larger. It is they who demand the long vacation, the extravagant devotion to athletics, the provision for a

"good time" at school and college. The rule of the boy in many families in such cases is absolute and neither parent nor school is able successfully to resist. But if we know what is right from an educational standpoint, we need not keep quiet because the case is difficult. If we see clearly the causes of the intellectual backwardness of the American boy we are untrue to our duty if we do not proclaim it. We may be sure that such protests are not wholly unfruitful.

If, however, the long vacations are inevitable, we ought to have more summer work for those who do not wish to waste so much time.

But this is a digression. We were saying that the remediable causes of the loss of time in secondary schools were ill-considered curricula, untrained teachers, and short terms. The first is yielding to the treatment of the Committee of Ten, the advice of university faculties, and the associated wisdom of the schoolmasters; the second is also mending; the third, so far as my knowledge goes, is as bad as ever. As a net result there is a gradual recovery and many boys go into our highest colleges at a reasonable age. We all know individual cases of average boys being well prepared at sixteen and seventeen, just enough cases to make us believe it is quite possible in many more, and Harvard University, which has not materially altered its standard for some years, finds that the average age of admission has decreased from nineteen years, seven months, to eighteen years, nine months, between 1889 and 1895, and in the latter year eighteen were admitted under seventeen years of age.

But the movement has not gone far, and eighteen and one-half is still the average age of admission to the best colleges of the Eastern states. It does not seem to have deterred entry. The large universities are rapidly growing, and college students the country over have increased between 1872 and 1895 from 23,000 to 82,000, from $\frac{6}{100}$ of 1 per cent. to $\frac{12}{100}$ of 1 per cent. of the total population. This includes, however, a large number of institutions of very low requirements.

Nevertheless, until parents and schools find some effective

way to advance their boys and girls faster than they do, the wisdom of adding to their burdens may be seriously questioned.

The six associated universities are out of reach of criticism. They know their own business. Were it not that their standards will have a serious influence upon all other institutions within their limits, which are practically coterminous with the nation (an influence, however, especially strong in their own locality) it would be manifestly improper for me to say a word.

They are not blind to the tendency. The presiding officer of one of them in his last report, after showing conclusively the evils of the advanced age of entrance, as shown in the handicaps upon poor students and the frequent omission of the college course, concludes: "I can think of no other solution than the reduction of the college course as it now exists by one year." Simultaneous with this report appear from the same university increased demands upon the schools, which they immediately construe as necessitating an additional year of preparation. The full effect of both changes will be to give the freshmen year to the schools and make the cleavage between secondary and higher education a year later, or at nineteen and one-half years.

It is on the wisdom of this proposition thus baldly stated, and the consequences which will flow from it, that the discussion should turn.

This is practically the age of admission to European universities, and if the undergraduate departments of our foremost institutions are, immediately or in the near future, to be the counterparts of Oxford and Berlin, we may all rejoice. We will have ultimately in America all that Europe can furnish, and we are approaching the consummation by rapid strides. But we have been led to consider that in our graduate courses leading to a Ph.D. degree we would find our real university students, and that the colleges, including those with university attachments, are in reality preparatory schools in the case of students whose ambitions demand higher work. If the advancing standard, the proposition to substitute a three years' course for a four, the tendency to make nineteen or twenty the entrance age, are

all moves in the direction of the establishment of a few institutions strictly devoted to university work, it only remains for the colleges patriotically to adjust themselves to the new conditions, and bear the evils of the transition as placidly as possible.

Indeed, this is what we are probably coming to. It is true Harvard announces officially, "In framing the new terms of admission of Harvard College the faculty does not intend to increase the total amount of work required in preparation;" it is true, moreover, that the addition of the year simply places other of the universities side by side with Harvard in the matter of requirements; and that the general expression of dissatisfaction with the advancing age of graduation will probably prevent further movements in this direction for a time at least. But just as the best colleges have found it desirable to do without preparatory departments, so the best universities will find it desirable, when they can afford it, to give their energies exclusively to university work and omit at least the lower classes of their undergraduates who need juvenile care and training. Many schools will, of course, then feed the universities directly, but a place may also be found for the pure college.

Whether the time has now come for the college to appropriate this place by setting up its own standards, making its own relations upwards and downwards, is, it seems to me, an open question which may properly be answered differently by different institutions.

I am not speaking for the weak colleges, small by reason of their weakness, having a shifty policy which must by all means get some students in order to exist, but of those colleges with sufficient resources of funds or friends, and a sufficiently loyal constituency to be able to determine to some extent their own future. My idea of such a college is one which takes boys from good schools, by rigid examination or certificates, at sixteen or seventeen and maintains a standard not greatly different in amount of requirements from the present standards of the good small colleges of the Eastern states.

I suppose such colleges would be, in one sense, anomalous

institutions; that there is nothing similar in other countries. They do work, which, at least in its lower years, is elsewhere accounted a segment of secondary education; hence it has been frequently proclaimed that there is no place for them, but that the school and the university will in time squeeze them out of existence. Nevertheless, we have them here; many of them are sure to live; they have arisen in response to a real demand; they have performed a useful function and deserve well of the republic. They often satisfy a local or denominational need not otherwise supplied, and it may be that a wise policy will increase their hold upon the public confidence and that the present is their opportunity.

It does not seem unreasonable to me to think that the division of secondary education and the relegation of the latter part of it to a wisely directed college would be the very best thing. The English, French, and German secondary schools hold their boys, roughly speaking, from twelve to twenty. There are many complaints that the discipline necessary for the small boys is irksome, and unprofitable for the older; that the yearly repetition of the regulations and methods of teaching up to manhood becomes enfeebling to the will power, destructive to honest enthusiasm and produces an unhealthy rebound during the first university year. If the latter half of the time were spent in a college with the minimum of regulations necessary to secure good morals and sound *morale*, leading to a Bachelor's degree, with a normal social life, it would be much better; and the question I desire to ask is whether something of this sort is not the best outlook for the small unattached college. Such a college would probably be supported by the following classes of patrons:

1. Many fitting for business, who consider twenty-one the very last year when a young man can be induced to attend to the traditional "sweeping the store" with grace to himself and satisfaction to his employer.
2. Many who expect to take professional courses and who wish the intellectual outlook obtained by college life before narrowing themselves to their specialties.

3. Many of more mature years whose early advantages have been slight, who have mainly been prepared in public schools and by personal effort and who have been awakened, perhaps rather late in life, by a book, a lecture, or a conversation to an intense desire to be educated.

4. Many who, for various reasons, social, moral, religious, or intellectual, prefer to begin their collegiate career in such an institution, following it out in the undergraduate or graduate courses of the university.

It seems that there might be sustenance for a number of small but strong colleges of a lower grade than the universities propose to maintain, which would have their feeders among the secondary schools and, in their turn, supply the ranks of business men and of professional and graduate schools.

But an objection and, in my opinion, a very serious one, will immediately occur to many of you. How can a different standard be maintained for the two collegiate grades?

If the college has a definite constituency of its own with its own preparatory schools, or if a group of such colleges is fed from the same preparatory schools, which send only occasional boys to the larger universities, they can set their own standards, and the place I have endeavored to outline can well be filled. But if a small college draws its students from schools whose main purpose is to feed the higher grade of colleges which necessarily determine the standard, the problem becomes very difficult. If it undertakes to secure the boys a year before the completion of their course it is a procedure which the school will be apt to frown upon, and the public sentiment of the boys, not usually very well instructed, will condemn as being the resource of a cheap institution to underbid the better neighbors. It will be in danger of receiving the fag-end of the classes — those who are not able or do not wish to take what is supposed to be a more severe and exalted course. If, on the other hand, it admits to the sophomore class, it will produce something of the same effect in the school and will receive all the inconveniences which result to itself from the omission of the freshman year.

These considerations may make it necessary to conform to the higher standard as a less evil alternative. Every institution would have to determine this to satisfy its peculiar circumstances.

But there may be, on some such basis as I have attempted to outline, an honorable and assured future for the college as a separate institution. It is to be hoped that it will accept the basis in a liberal spirit. It must not set itself athwart the spirit of the age and assume to itself the unnecessary responsibility of defending ancient ideas and practices. It must rather, without sacrificing the difficulty and dignity of real education, be very alert to, and very closely in touch with, the demands of its constituency. It does not seem to me for instance, that it is necessary for it to be the special conservator of the Greek language and what is called the integrity of the Bachelor of Arts degree. With Harvard and Johns Hopkins, and Cornell, and Williams and Bryn Mawr giving the degree without Greek the revolution is accomplished. If it be treason they have made the most of it and succeeded. While the amount and quality of Greek in a college may be the best measure of its scholarship there are certainly some students who need a liberal culture and are capable of securing it without Greek who should be, when they succeed, crowned with the degree which now and in past ages stands and has stood for liberal culture.

Such colleges—honest in every published statement, manned by sympathetic and scholarly officials whose main interests lie in the welfare of the students as individuals, equipped with all supplies of books and apparatus their needs demand, drawing their students to themselves by ample provision for and interest in every justifiable athletic and social function, stimulating intellectual ambitions which will find their natural outlet in the large universities, fitting them by effective training for successful careers in these universities—such colleges have certainly a place of no small importance in our American system.

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WHAT IS THE PRESENT CONSENSUS OF OPINION AS TO THE MOST IMPORTANT PROBLEMS IN PREPARATORY AND COLLEGIATE EDUCATION?

Amid the constantly shifting conditions that prevail in the relations of colleges and secondary schools, the representatives of the latter find it difficult to formulate definitely their opinion of a present status. It would be unwise, impossible in fact, to predicate from the momentary aspect that the era of final agreement on vital problems is in sight. Two months ago I should have been prompted to say that though various differences have not been entirely removed, it would be impolitic to exaggerate these differences, and that the trend toward unification was obvious and irresistible; before this association in particular, that has been most hospitable toward every discussion that aimed at a thorough correlation of secondary and collegiate studies, the occasion to make such a statement would have been particularly agreeable. But the outlook has been strangely obscured, and the last few weeks have brought us in the definitions of its requirements issued by Harvard College the prospect of so many new complications that the satisfactory adjustment of the burning questions seems further removed than ever. Is it actually impossible for the colleges to agree upon certain qualifications that all entering students should possess? Do these petty modifications in the requirements insure a peculiar quality of mind in the candidates for one college which those called upon to meet other requirements do not possess? If not, why the demand to secure these minor differentiations which involve on our part so constant a waste of energy?

But it would be unfair to this assembly to dwell at any length on proposals that have not yet been made actually operative; our task today is one of criticism on methods that have been on trial, methods whose practical outcome we feel we are now entitled to gauge. Five years have passed since the

movement was initiated that produced the report of the Committee of Ten, with the reports of its nine subcommittees ; is it fair then to ask, What is the status of secondary education today ? How have the various propositions looking toward improvement been received ? To what extent have they affected actual teaching ? What is the general outlook for the future ? Questions of this kind have been constantly present to our minds within recent years, and in considering them earnestly, many of us, I am glad to say, have outgrown the narrow conception that a record of successful entrance examinations on the part of our pupils is *our* highest ideal ; we have become convinced that the *test* may take care of itself, may be looked upon as an *incident*, if our work has been planned on broad, rational, effective methods. And here I touch upon the first serious question : Do the college requirements, in so far as they are the outcome of recent discussions, enable us to make our secondary work broad, rational, effective, or have they in certain directions embarrassed it ?

I shall specify three different directions, in which it seems to me that we are at present laboring under great drawbacks. In our classical work, because of the threatening supremacy of the sight translation test. You all recall the old method of classical study that the new test was intended to replace ; how the student, despite his dictionary and grammar, toiled through his texts, in his attempt to work out a translation, how he reviewed it, committed it to memory, and withal, untrained to make his inferences from analogy of form, from skillful grouping of related word stems, had gained but little experience of Latin and Greek sentence structure. A new generation of classical professors demanded power, an earlier insight into the genius of the language, ability to put the specific knowledge previously gained to immediate use on new and unfamiliar ground. The value of the new method is unquestioned, and the Latin subcommittee of the original Committee of Ten, aiming to indicate its belief in the value of the sight translation method, supplemented a somewhat full discussion of the subject by the following resolution :

" (6) While the conference does not find itself yet prepared to

declare that translation at sight, from Latin into English, and from English into Latin, without examination upon the ground previously gone over, constitutes a complete and satisfactory test of the student's knowledge, as well as of the power he has gained, it strongly recommends that such twofold translation at sight form a constant and increasing part of the examination for admission *and of the work of preparation.*"

As a member of that committee I cannot but regret that this resolution, which had been worded with extreme care, because of the important point involved, has been loosely interpreted to give unqualified support to sight translation as the most satisfactory method of preparation in Latin and Greek. Nothing was further removed from our thoughts; in many parts of the country, in many excellent schools and colleges, little or no value had previously been attached to sight translation; we urged its importance; it was to form a constant, an increasing part of preparation; we were not prepared to declare it a complete test at examinations of the pupil's knowledge and power, and we never dreamed of assigning it a preponderating influence *in the work of preparation.* Yet such has been the current inference as to our attitude; and there seems to be developing an alarming tendency to subordinate all other phases of classical study, however valuable, to the acquisition of this one faculty. Such a course is extreme, is irrational, is sure to weaken that thorough appreciation of the classical spirit which can only be attained in a connected study of a literary work of art. The experienced teacher recognizes in this one-sided cultivation of sight translation an excess, similar to the unbridled enthusiasm for the natural method that ran its course some years ago. As an *exclusive test* of knowledge of the classical tongues, translation at sight has been distinctly disappointing at Harvard, that first championed its value; that university's most recent official utterance is specific on the point of making it *one* of several tests; it has become imperatively necessary to put forth a plea for close, detailed, analytical study of certain selections from the Latin and Greek authors. Incidentally, let me refer to the

mischievous conclusions to which this sight translation test has given rise. The judgment on the defective English of entering candidates into the same university has been based mainly upon the extempore translations from Latin and Greek; many of us have marveled at the pedagogical judgment of classical professors who countenance the adverse criticism of the English obtained from students under such circumstances; one might have expected them to appreciate the difficulties clearly set forth in the report of the English subcommittee, in the following words: "The admission of a student to college so far as English is concerned, should be made to depend largely on his ability to write English as shown in his examination books on other subjects. If the candidate's translations from foreign languages are used for this purpose, the examiner should remember that vagueness and absurdity in such translations often result from ignorance of the foreign language, rather than from imperfect knowledge of one's mother tongue, and that, further, the art of translation is a very difficult art even to a writer who is at home in both the languages concerned. A student who in general writes well enough may, from either or both of these causes, appear to very poor advantage in an exercise in translation."

To sum up briefly: It is unnecessary to make sight translation the one supreme aim; even now earnest teachers secure the desirable skill in sight translation without sacrificing the other valuable factors that enter into sound classical training.

A more serious problem is that of history teaching in secondary schools, and I must refer at some length to this subject notwithstanding the special consideration of this subject in the meeting of this morning. I repeat, this is a more serious problem because all suggestions looking to improvement involve the demand for additional time, which, it would seem, history *must* not claim. Setting aside just now the question of time allotment, which shall receive due consideration at a later stage of this paper, what knowledge of history do high-school graduates and students entering college possess? and what knowledge could be expected of young men and women at the age of seventeen and

eighteen? Surely the bare skeleton of Greek and Roman history, on which our entering college student has crammed, or the alternative of English and French history, as taught in most of our high schools, is not a sufficient attainment for students of that age. Consider that history deals with topics far more interesting to youthful minds than Latin or Greek or mathematics; that it is in the highest sense a humanizing subject, that the lessons gained from the past experiences of the race suggest without any formal comparison interesting views on the motives, the character of men, past and present, and you will say that to furnish copiously from the storehouse of general history material for such interest should be one of the highest aims of secondary education. It is injudicious, I take it, to substitute for a comprehensive study of history in the secondary schools the consideration of one or two nations, because of constitutional tendencies in their organization, similar or opposed to those of our own country; considerations like these are properly the basis for later and more refined judgments. It will be seen that I plead for the simple knowledge of facts, and believe that the inferences as to character, motives, operations of the mind must not be *formally* drawn, must rather suggest themselves. It is a cardinal point this, in which I cannot but feel that the history report of the Committee of Ten presents an aspect of the case which is that of the college and the university, rather than of the secondary schools. *Facts* receive but scant courtesy in that part of the report which deals with the usual objects of historical study. Facts, dry facts, are pronounced the least important outcome of historical study; the value of detached historical facts is regarded as but small, they are emphatically declared to have no more inherent value than digits in arithmetic; they are only means to an end. The committee lends its formal approval to the statement of a teacher of history who says: "I have no time for dry facts; I give my children only life." Now, historical facts are not dry, unless the teacher be dry; but whether dry or not, they must be the basis of historical study; they must be acquired extensively, fully, at that period of life when

the power of acquiring information is at its highest development. To put it plainly, the time of life up to the completion of the secondary school is peculiarly adapted to the assimilation of facts; and not until this great body of material has been absorbed ought any process of criticism to be undertaken. The plea for an increase in the elementary historical knowledge of students cannot be made too vigorous, for here is one of the most vulnerable points in our educational system. The obvious lack of historical information which our nation as a whole reveals, and which is so painfully apparent in our newspapers, in the utterances of our public men, does not admit of a remedy within college and university halls; it is a curious commentary on the injury caused by an early deficiency like this that even the researches of some of our historical specialists suffer from the lack of general historical perspective. The demand for a well-systematized course of *general history*, of the *facts* of general history, seem to invite an arrangement somewhat like the following: Our own national history ought to be the *starting point*, the pivotal point, as well as the *goal* of our secondary work in history. The youngest of the great nations of the world owes it to itself to inculcate into the minds of its children, to what degree and in what particulars it has been shaped by the doctrines and the actual struggles of all its predecessors. The modification, therefore, of the eight-year scheme, as it was proposed by the history committee, would involve a succession of history lessons in which our national history is introduced at three different stages of the curriculum:

Narrative history, mainly of a biographical character for the first three years.

1. American colonization, independence.
2. Greek and Roman mythology and biography.
3. Mediæval and modern history.
4. United States history, by comparison with England.
5. Greek and Roman history.
6. Mediæval history to Reformation.
7. Modern European history.
8. American history since the adoption of the constitution. Civil government.

From the sphere of secondary work in history, this scheme completely excludes one subject that has been strongly favored by the several History Commissions from whom we have heard in recent years; that of the intensive study of some one period of history, to occupy the last year of the course; its aim, if I use the very words of the committee, is "to apply on a small scale the kind of training furnished by the best colleges; it will teach careful examination and comparison of sources and it will give the pupil a practical power to collect and use historical material." No recommendation more unfortunate for the general scheme of secondary historical work can well be conceived. It proposes to curtail by an entire year the acquisitive period of historical study, and it substitutes with a strange perversity what thoughtful teachers must declare a hollow pretense, a delusion, a waste of effort. To impose upon immature secondary pupils a method that college students in their earlier years cannot be expected to employ, strikes one as both useless and pernicious; pernicious for this reason chiefly, that it breeds in the ignorant pupil the belief that he is carrying on original work, whereas he is simply going through the motions in a perfunctory manner. The proposition smacks altogether too much of the catch-phrases that have gained favor in certain educational circles to the effect that even young pupils must create, rather than acquire. One is tempted to ask: Is the accumulated experience of generations of thoughtful students to go for naught? Is the halting rediscovery of facts and principles long since known so valuable an educational agency? Contrast with this false conception the incisive and authoritative utterance of the Natural Science Committee, in the report of the Committee of Ten; that in the instruction in physics and chemistry it should *not* be the aim of the student to make a so-called rediscovery of the laws of these sciences. The History Commission out-Herods Herod when it demands for the secondary course what it calls a laboratory method, one which the staunchest advocates of laboratory methods repudiate.

Despite these two serious flaws in the suggestions for

improved history instruction, a lack of appreciation for the value of facts on the one hand, and the advocacy of premature attempts at research, the secondary teacher may consider the inspiration that has come to him from the report of the Historical Committee one of the great gains of this decade; most valuable, perhaps, is the modification of our school programmes which it proposes and which to me seems as rational as our prevailing method, sanctioned by tradition and habit, seems irrational. It deserves our serious consideration for a few moments. It has been the approved arrangement in our high and secondary schools to *mass* instruction in certain subjects within a few years by assigning a considerable number of recitations to them within this period. The History Commission bases its conclusions on the valuable results attained in other countries by the opposite method, and recognizes that this system of short courses with many exercises per week prevents assimilation of the matter; that the continuous pursuit of history, even with two recitations per week throughout almost the entire school life, is productive of more permanent gain. The objection usually urged that the variety of subjects entails distraction of the pupil's mind is invalid; it has been disproved by the experience of every other country; it disappears, when competent *teaching* replaces the solemn ineptitude of the average class room, and the slavish devotion to the language of the text-book. Would that the importance of this observation of the Historical Committee had so impressed the original Committee of Ten, as to influence their construction of practical programmes!

But the difficulties and doubts in the problems of classical and historical teaching pale altogether before the vexatious question of our teaching of English. From present indications we shall reach acceptable working methods in every other branch of secondary training *earlier* than in the teaching of our mother tongue. To some sanguine minds the comparative ease with which the various commissions on the study of English reach agreement as to the requirements of college admission meant a prompt adjustment of the difficulties involved in the *teaching* of this subject.

I hope that this confidence is not too widely spread, that our own committee on English and their co-workers in other organizations recognize the herculean nature of the task, and feel that their lists of books and their suggestions as to the handling of them are the merest tentative effort to secure a minimum requirement from the schools. They insure by their recommendations that youths at the completion of their secondary and high-school courses shall not be absolutely devoid of knowledge of their own language; they have devised a means of *testing* improvement; they have been far from indicating a consistent mode of bringing about improvement. Assume for a moment that the eight or ten books recommended for reading and study could be ideally graded (an outright impossibility, for literary works have a purpose of their own, and are not created as educational agents); yet the reading of these books cannot insure ability to use the language successfully as a vehicle of thought. Here is a task for a permanent English commission to reform our whole elementary and secondary system of instruction in the vernacular. As far as the community at large is concerned, our own language is the only means of expressing thought, and it is only *when* we have thoughts to express that the legitimate purposes of language are met. The reform in the English department means nothing less than the extirpation of the slovenliness in speech *and in thought* that is now the most marked feature in our popular education. It is obviously insufficient to demand merely a closer formal study of the language; language must operate upon something of intrinsic content. We all realize that mere digital facility does not insure satisfactory interpretation of music; neither will the mechanics of grammatical accuracy, the cleverness in employment of rhetorical figures, nor the skill in paragraphing, ever produce a satisfactory exposition of thought. It should be the task of our English commissions to remodel the whole of our English teaching in primary and secondary work; keeping in view a twofold aim, thought-stimulation as the *basis* of the new scheme, and expression as its logical and necessary *adjunct*. Here, as at all other points of

the educational scheme, the prospect of great improvement is intimately associated with a question of intellectual honesty; unless we frankly admit our tremendous shortcomings, and cease to flatter ourselves that we are accomplishing all that can be obtained, the chances of regeneration are slight. Let us rather note what *is* attainable elsewhere; and if the experience of other nations points the way to the development of a system that will insure a mastery of the native language in form and substance, let not a mockery of patriotic impulse prevent us from profiting by such experience. I do not hesitate to urge upon the consideration of our teachers the study of the methods of the French schools. Here is a model of what is attainable by a well-balanced course of language work; it is well known that the French language course produces a greater degree of average excellence than does the more elaborate and more scientific method of the German elementary and secondary schools; this model is more likely to meet the needs of our general scheme of education.

The French system is so pronounced in its enunciation of its central purpose, that we who have never undertaken to establish a central principle to which all the rest of our work must be ancillary may well afford to observe the method of application. The educational authorities of France recognize that clearness of expression and clearness of thought are the fundamentals of any mastery in style, and they concentrate their efforts upon securing effectiveness in this direction; the successful issue in the case of the pupil hinges upon the possession of the same power in his instructor, and clearness is the main requirement of the French elementary teacher as of the professor at the Sorbonne. Nor does clearness preclude depth. It is a gratuitous assumption that attention to formal excellence involves a sacrifice of close reasoning, or leads to undue love of generalities. The thoroughness of French scientific, linguistic, and historical research in the present generation is as marked as is its uniform literary excellence. But this is apart from our present inquiry; we are considering the possibilities of the secondary-school system. It is a matter of common remark that the average gradu-

ate of a French secondary school speaks and writes correctly and *well*, uses the language with a nice appreciation of idiomatic peculiarities, has acquired a keen relish of the masterpieces of his literature. Can we claim the same for our high-school and secondary-school graduates? This is not the proper place to dilate in detail on the methods by which the French attain this inestimable result; except to state that the experience of generations of well-trained teachers has devised a most carefully graded system; the task is so delicately and judiciously apportioned that the primary teacher has as important a part in this mission as the teacher of the highest class in the Lycée.

Governmental supervision, it is true, arranges for such elaboration of details; but if we cannot supply the weight and authority of government commissions, is not this work worthy of the joint efforts of universities and preparatory schools? Here, surely, the judgment of educational experts, directing public opinion intelligently and demonstrating the technical value of training, could advance us considerably toward the ideal pursuit of our language in the schools. And *here, more* than in some of the other directions proposed, pressure from above can be of great assistance. I believe, for instance, more than ever in the efficacy of the plan, proposed by a few of our leading colleges, to close their doors against those who have not learned to use their own language well; the hardship it may create for the first unfortunate victims will soon be obviated; the secondary schools will readjust themselves to the situation; teachers who *will* not teach English whilst they teach history, geography, or natural science must be superseded by those who can appreciate the bearings of the new conditions, and the good work will spread into the elementary schools. In taking this ground I assume that the secondary teachers in this body are animated by *one* controlling desire, to note carefully wherein our shortcomings lie, and to consider how they may be overcome. If our attitude is that of complete satisfaction with ourselves, we need not assemble here. We may well adopt as the model of our educational gatherings the methods and the tone pre-

vailing in the great European gatherings of educators; however marked their success, they *never* indulge in self-glorification, but knowing that even the best system must have defects, they proceed to revise their methods and search zealously for every possible flaw. It is in the best sense optimistic to expose mercilessly one's own defects and then strive to attain a higher plane of excellence.

And here, then, I reach what is to me the vital point in this question of the present aspect of secondary education. We must effect a complete change in two important directions. (1) In the matter of the time to be devoted to school work. I am aware that, as I pleaded for the extension of the history course, for a detailed elaboration of the English schedule, many of you felt prompted to urge the lack of time. I admit, as things now stand, within the present time assignments we can find opportunity for neither a consistent history course nor for an ample measure of English work. But why accept this arrangement as a finality? It was the outright acceptance of this time condition that vitiated the report of the Committee of Ten. The subcommittees had formulated the needs of their subjects; it was agreed on all sides that they had proceeded reasonably, had not been unduly peremptory or exacting in their demands; it was the general committee's task to weld them into one or more coherent courses; how did they proceed? They acknowledged the correctness of the demands made by each, and yet they mercilessly extirpated certain subjects, destroyed the logical sequence of other correlated subjects, created arbitrary breaks, and chose the alternative of omitting essentials rather than that of making a rational adjustment of the time element, simply because the allotted and accepted number of periods in high-school work was traditionally fixed at twenty, and of these twenty periods but fifteen to be of such a nature as to require preparation. Why did the committee from its unique point of vantage not make a bold attack on this convention of the old twenty-period week, and show the absolute impossibility of establishing a sound scheme, as long as they were hampered by

such restraints? It was from the outset futile to fit great measures of educational reform into the strait-jacket of accepted, ingrained conditions; it was idle to perpetuate unsatisfactory methods; far better to have declared outright against any programme of this kind, to have *demand*ed more periods, and then offered on this new basis the several rational combinations possible. There is no reason whatever why twenty-five weekly periods of actual study (I mean study involving preparation) could not be called for; more than this is accomplished in every European country, and our youth, mentally alert, cannot do better than be absorbed more intensely than they are now between the ages of fourteen and eighteen in devotion to their studies. On this basis ample time will be gained for all that can be claimed of a secondary course. The objection that arises at once in the minds of all of you is this: but those twenty-five recitation periods require preparation—considerable preparation; according to existing methods, almost as much time as the school sessions now occupy; a fatal objection, I admit, if this did not admit of remedy. We must *teach* during our school sessions.

The modern language report closes its discussion with a paragraph startling in its brevity. The worst obstacle to the progress of modern language study is the lack of properly equipped instructors. A little reflection will convince us that the same obstacle obtains in every field of secondary education; here is the root of all our disappointments. The art of imparting information has not yet been successfully cultivated among us. We hear recitations, rather than teach. We have normal graduates who have been saturated with theory, but who lack the essentials of *information*; college graduates with a *modicum* of information, lacking method. If under these conditions really good teachers, sound in attainments and skilled in the art of imparting knowledge, are rare, is it strange? At the risk of your displeasure I must again revert to the European model. European teachers prepare themselves for their work as they would for any profession; the mere fact of college graduation

does not imply qualification to teach. With us, especially with our young men, it is often but a stepping-stone to some other profession. We cannot protest too vigorously against this. If we insist strongly on securing the standing of a profession for our work we must not hesitate to demand an unusual effort of those who propose to enter it. It is an encouraging sign of the general advance in the legal and medical professions that the professional training has been made more extensive and more difficult. Not more, but better, lawyers and physicians are to be developed in the future; so too, better, trained teachers are necessary if the quality of the work is to be improved; poor attainments on the part of the teacher mean poor standards of scholarships; let the entrance into the profession be made more difficult, more expensive, because of the longer period of preparation, but it will prove more satisfactory in the end. Just how are we to effect this improvement? So momentous a question cannot be decided offhand; here, however, are two working suggestions. Every normal school should have a one-year course of theory and practice attached, to which none but college graduates could be admitted; the few who have of their own volition adopted this course show the value of this combination; if to the substratum of a college education a year's study of normal methods be added with practice teaching under the guidance of an educational expert, there is a strong presumption that the practice year will reduce the chance of complete failure. Better still seems to me the following scheme: Every teacher of high standing should arrange for a postgraduate teacher's course, in which there should be superimposed upon the general culture courses of the ordinary college a group, say of two major subjects, the history of education and psychology, together with three minors; one of these should invariably be English, the other two the young teacher's special subjects (language, history, science or mathematics); in these the future teacher is to gain insight into the best methods of presentation of the subject-matter. A post-graduate course of this kind presupposes, in the first place, in the body of university instructors

men who possess the theoretic equipment that is commensurate to a proper exposition of the philosophy of education; in the second place, one or several men, who, having been successful teachers in secondary and elementary work, are able to crystallize the results of the best teaching into adequate suggestions for the future teacher; the arrangement of subject-matter, the determination of the rate of advance, the distribution of light and shade, according to the relative importance of the theme, are some of the vexatious questions that harass the efforts of the young teacher, and here no theory can supplant the direction of one who has himself experienced the difficulties of a secondary teacher. Under the special guidance of the expert teacher the aspirant should also carry out in practice during his post-graduate term his practical teaching in some of the local high or grammar schools; criticism of his procedure is then to be given in the seminary of practical pedagogics where the candidate may have an opportunity to defend the correctness of his method or to be enlightened as to its defects. For the very reason that we have no state supervision in our country some high standard like this should be set, and a university certificate, showing ability to meet this standard, is desirable. An approach toward this ideal is attempted in one or two of our colleges, as for instance in the pedagogical annex to Brown University. A weak point in the system adopted at Brown lies, however, in this, that the inexperienced teacher is utilized as a half-pay instructor during this year of special training. The interests of the community that pays his salary and of the university that aims at shaping his mental attitude for his future career will inevitably clash; the probationary teaching should not be productive of salary. I know that all this means an increase in the time of preparation, but it is only thus that we shall secure men and women who, when they assume the responsible positions of secondary teachers, are not at sea in the fundamentals of the work. There was suggested some years ago by some of our most prominent educators, like President Eliot and President Low, a common examination board for entrance into our colleges; for various reasons

we do not seem ready as yet for this great step in advance. But it should prove an easier task to arrange for a commission from half a dozen leading colleges to examine teacher candidates. To a certificate issued by such a commission there would attach such weight that it would soon be considered desirable; many of our best academies, preparatory and high schools would be inclined to give the preference in appointments to those approved by this examining board. How much more definite in value such a document would be than the ordinary college diploma or the usual recommendations, issued in a benevolent spirit by the members of the college faculties! All of us who have been obliged to engage teachers on the strength of such assurances know that in view of the lack of definite standards, each selection is in the nature of a lottery. Is it not here, where the colleges should most effectively coöperate with us? Their work calls for students capable of following them intelligently; they can only secure them by aiding *us* in a general amelioration of the earlier processes of education. For this purpose we need their support in the inevitable struggle against popular indifference or prejudice, that thus far fails to appreciate the value of elaborate preparation for the teacher's career, and is reluctant to pay for it when found. It is obvious that the mental calibre of the secondary teacher determines in great measure the success of college work, and we teachers of the present cannot testify more effectively to the pride we take in our calling than if we invite discussion in these joint deliberations on the methods necessary to rear a body of teachers superior to ourselves.

JULIUS SACHS

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DISCUSSION

Mr. President, Ladies and Gentlemen: What is to be presented here is to some extent, a mere accentuation of the points made in Dr. Sachs' excellent paper. I would neither add to, nor subtract from, what he says in regard to sight translation.

It is doubtful if, as now constituted, there is room in the college preparatory curriculum for another required subject. If there is room, even after rejecting something already in that course, some additional study of history has the first claim to recognition. Just what this increase of historical study is to be is debatable. Shall it be a superficial skimming over the whole range of the subject, or a thorough mastery of a limited portion? Is there not danger that the too diffuse study of this branch may result in such meager historical knowledge and such unsatisfactory discipline as were experienced under the old régime, when in its entrance requirements the college relied upon the student's voluntary and cursory acquisition of historical information obtained merely in reading the classics? As at present required by the best colleges, preparation in the history of Greece and Rome is one of the most valued studies of the secondary school; while it is beyond question that the most disgraceful ignorance of the college freshmen today is his ignorance of English history. Some colleges in their requirements for admission allow a choice between the history of England and that of Greece and Rome. Very few demand both. Now that the study of the English language and literature has attained an assured place in the college preparatory curriculum, let English history be duly magnified. To bring this about it is only necessary that the colleges make a demand for it; since in the matter of preparation the colleges get only what their examinations call for. They should demand both the history of Greece and Rome and that of England; and if the required curriculum is already crowded, as seems to be the case, enough work being laid down by some of the colleges to make necessary a preparatory course of five years instead of four, let the colleges decide what is to give way to English history.

It is urged by some with greater zeal than sound reasoning, it is feared, that all other topics of study in the secondary schools should be made subservient to the study of English. This is, indeed, educational idealism. Would that it were realizable! The suggestion, while having some pedagogical found-

dation, and having on the score of useful training some utilitarian significance, is not sufficiently reasonable to warrant serious consideration. Success is claimed for the German schoolmasters, who connect organically everything taught during a day, a week, a month, or a year. They may with reason treat connectedly the teaching of botany and drawing; but when they add to these geometry, making the leaf outline furnish distinct geometrical figures, the process of "connecting organically" would seem to be unwisely extended. It is puerile to carry this idea so far as to make the reading lesson of the day supply the substance of the day's problems in mathematics, as some propose doing; as when, if the reading lesson is about the surrender at Yorktown, the problem is made to read: If the British force numbered so many, the American so many, and the French so many, what per cent. of the whole was the French force? Making all teaching contribute to a knowledge of English has, to be sure, nothing puerile about it or objectionable from a mere pedagogical point of view; but it is certain to prove impracticable except as it is attempted on a very meager scale. Every day, and many times a day, a good teacher in any department will correct the imperfect articulation commonly heard in such expressions as "wild beasts," and will point out the proper pronunciation of words, but in the early stages of such a study as Latin, for instance, he will exhaust all his available vitality in efforts to keep the accent away from the *ultima* in oral inflection, in making the pupil sure of the future indicative of the third conjugation, and in fixing numerous other points where accurate Latin scholarship must be perseveringly insisted upon. English may be casually taught in connection with any other subject, but it will be English wholly subservient to the subject in hand, not *vice versa*. The teacher of geometry does not feel called upon to give two distinct ratings of a pupil, one for geometry and one for English. If he obtains from the student a clear and logical demonstration of the proposition, he will be likely to treat as more or less venial such grammatical inaccuracy as is contained in the statement that "the sum of two angles are,"

though a good teacher would not fail to correct such a mistake to the hundredth time.

There is something to justify the prevailing impression that in this country too small a portion of time is given to school and study; that, when compared with those of other leading countries, our school day, school week, and school year are clearly of less extent than theirs. This difference in great measure accounts for the alleged inferior results obtained in our schools, especially when compared with those of Germany. Our shorter school year may justly be charged to climate. Is there, however, any valid ground for maintaining that our school week and school day should be shorter than they are in Germany? As half-day sessions, especially in the large cities where pupils often have long distances to go to reach school, are not likely to be looked upon with favor, the most reasonable way to increase the amount of our school time is to increase the length of the daily session. This increase, to the extent of half an hour, is not unreasonable. As this would give five minutes more to each of the six recitation periods of the day, and would make the length of the school week in the United States equal to that abroad, it would do not a little to make good our educational deficit. It is, however, probably hopeless to expect ever to make good the disparity caused by the European excess of four or six weeks in the school year. As things are at present, our pupils are with difficulty kept in school until the first of July, and in most private schools this is quite impossible, as it is also impossible to bring them back to their books before the end of September.

The improvement in the quality of the teaching in our schools is a leading educational question, and is likely to continue to be so for some time to come. Another question is, however, beginning to assume importance—how shall we improve the conditions under which the better equipped teacher is to work? *Pari passu* with the better professional training has come the multiplication of subjects to be taught, until the exercises of the schoolroom have become too much the exploiting of the teacher's self, while

the pupil, becoming a mere recipient and exercising no faculty but that of absorption, has a tendency to become an intellectual weakling. The teaching of the grammar schools to-day, where so many subjects require attention, frequently sends to the high school pupils lamentably deficient in power to think and work independently. Probably 75 per cent. of the teachers in the grammar and lower grades of our city public schools have had some kind of moral training. It is safe to suppose that this training has been of a scientific character. If, then, its results, as shown by the condition of pupils when they enter the high school, are unsatisfactory, the fault must be chiefly due to the handicapped conditions to which the grammar-school teachers are subject. The same faults, in a less exaggerated degree, are present in the high school, despite the assurance of a distinguished apostle of modern education, an eminent head of a great university, who has recently declared it to be the amazement of his life that the secondary schools of this country have reached such a degree of efficiency as they now give evidence of, our preparatory schools, in his judgment, being so excellent as to warrant shortening the college course to three years.

It is impossible in treating this phase of the subject to separate the high schools from the schools below them. Mistakes in the pupil's earlier career mar his later work. Keeping in mind for the moment the public schools, this remark has peculiar significance, especially as the public-school system now embraces both the professional and academic education of teachers. Each city has in its hands the entire moulding of its grade teachers, training them even from the kindergarten to the end of the period of the professional school. Within recent years subjects have become prominent in our lower schools which once would have been thought out of place there. These subjects are some of them technical and artistic, and are not to be taught satisfactorily except by teachers specially trained. Drawing and music are fine arts, and from the beginning should be taught by persons carefully educated for the purpose. So, those who are to become teachers of physical training and sewing, to give acceptable and

profitable service, must have been subjected in the high and normal schools to a training emphasized in these respects. There should be a wise discrimination in the courses of study in the high and the normal schools such that, while requiring all to pursue the more fundamental subjects alike, a few, who are gifted by nature for any one of these less fundamental branches, may receive a thorough training in their particular specialties. Then there would be eventually in every grammar school a competent teacher of drawing, and music, and sewing, and physical culture, and yet this same teacher would here receive the full equipment in the more solid branches, as well as also in psychology, methods, and the general history and science of education.

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Mr. President, Ladies and Gentlemen. Obviously, the ten-minute speakers are at a disadvantage in attempting to controvert any opinions that may have been already presented, with which they do not agree. You will pardon, then, abruptness and rapidity of reading, if, in what few words I have to say, I endeavor to cover rather more ground than properly belongs to a ten-minute limit.

With Dr. Sharpless' fourth thesis, we have no contention. We believe thoroughly in the value, and have strong convictions as to the place of the small college. It has been, and is still doing a work which I for one would never hinder nor belittle.

Concerning the third thesis there is much we should like to say, did time permit. We can only say in passing, in relation to a part of it, that we are unable to see how a *local* evil or *temporary bad* management can be used fairly as an argument against principles.

It is with the first thesis that we are inclined to take issue strongly. We are not, as yet, convinced that the recent changes in university standards do "involve an increase of age for admission," that they have, or will, "produce additions of one year to preparatory courses," or that these changes "are unwise." In fact, Dr. Sharpless' second thesis points out the way in which much time may be saved, and we know from experience, that this economy *can* be practiced to a much greater extent than he admits. Anyone who has watched the tread-

mill processes of elementary schools, on such subjects, for instance, as arithmetic and geography, knows perfectly well where the responsibility for a large part of the time consumed rests.

But Dr. Sharpless does not even insert in his theses the chief feature of modern changes, namely, the drift towards options in entrance requirements. In this direction lies our surest hope for improvement. When this is established on a rational basis, many difficulties, including loss of time, will become of a character easier to meet, and it will then become possible to provide an educational training, up to the limit of the secondary school, more virile in character, and far better suited to the needs of modern life than that which now exists.

Such freedom in options as we should like, cannot, however, be attained until colleges, large and small, admit the possibility of culture without the study of the Latin and Greek languages. Notice, we do not say, without the study of Latin and Greek history, literature and art. We say, without the study of the Latin and Greek tongues. Professor Hart, of Harvard, intimates that this will be done "only over the heroic bodies of the defenders of classical learning" and I am afraid he is right. Nevertheless, I believe that this is the direction of safe and useful progress. In some way, by some means, we must contrive to convict disbelievers of sin, and persuade them to repentance.

Is it really clear that one is wrong in asserting that it is not wise for secondary schools to be without the stimulus of a high standard of entrance requirements? Twenty years' experience, in an eastern school constantly fitting boys for Harvard, does not so teach us. Nay, we go further, and believe that the influence of these standards ought, as promptly as possible, to reach far more secondary work than it now does. The extension of the principle of options will make this possible.

But after all, this is not the main point to which we wish to speak. Dr. Sachs has advocated the substitution of general history in the place of special. In this he is not alone. Professor Salmon has done the same at another time, and there are others who believe the same. With your permission we will give, somewhat at length, our reasons for disagreeing with them. These reasons are based on the content of the subject, the incentives it furnishes, and the mental development of the student. If you will kindly fill the gaps in the argument, a résumé will run somewhat as follows:

The value of any one subject as an educational factor will be great or small, according as it helps strongly or feebly towards the main end of education. Now, we take it, with Professor Hanus, that the great aim of education is "complete living," which means, in the last analysis, to be useful, and to be happy. To be useful, means to be of service to one's self and to others. Capacity for service means power, but power is not developed without incentives, and the incentives furnished by a subject, depend on its content, and on the permanent interest which this content stimulates. Thus, content and interest provide for us the tests by means of which we can determine educational values and decide upon our methods. Now, the highest ideals of the race, those, that is, which furnish the most powerful incentives, are ethical. They embody, as has been said by another, our thoughts concerning duty, honor, beauty, love. These are the ideals involved in the content of history. History lacks the powerful imaginative content of literature, the rational content of philosophy, and the æsthetic ideals of art; but it is the story of human life with all its hopes, struggles, defeats, and victories; it sets before us the highest actual examples of honor, of courage, of self-denial, and of achievement; it involves the rise and fall of principles, the influence of environment, the change of morals, the development of literature and art; it notes for us the relentless nature, and the wide reach of the evil which dogs the steps of human error; it portrays the incessant struggle between right and wrong, and warns us of the eternal necessity for vigilance. It seems needless to assert that a content like this is full of powerful incentives, nor does it seem possible that it can be lacking in interest. But the subject, nevertheless, *has* considerable difficulty pertaining to it and too often fails to command permanent interest. This failure is mainly due to mistaken methods; but the inherent difficulty is not to be removed by random change of method. It must be understood before it can be met. The two most prominent forms of human reasoning are induction and deduction. The former proceeds from ascertained facts to incontestable generalization; the latter, dealing in *certain* premises, arrives at *sure* conclusions; but, while these are the most prominent, they are not by any means the most common forms of reasoning. By far the larger part of our reasoning deals with data of which we are not, and cannot be sure, and arrives at conclusions which are only probable. This is illustrated forcibly in the region of personal conduct, which, if rational and wise,

is only to be decided upon after consideration of attendant circumstances. Now the content of history partakes of precisely this character. It deals with men, their deeds, and their motives. Even when the deeds and facts are certain, the play of motives is obscure. We can never place ourselves in the exact environments of these men of the past, and therefore, can never be sure of all which influenced them to their conclusions. All our reasoning concerning them is probable, as was also theirs concerning the data with which they had to do. They were men like ourselves, and quite as hard to understand, as our fellow men today. Therein lies the difficulty of the subject, but therein lies also its inestimable use as well as the possibility of an intensely human interest.

If the above be thoroughly understood, it is no longer strange that young people so often fail to develop an interest in this subject. Successful reasoning on probabilities is only possible after the accumulation of sufficient data for comparison. Immature minds do not possess these data. Any attempt to force this side of historical study upon the young mind either too early or too fast, simply defeats itself. A youth cannot become interested in what he cannot understand. The present condition of the subject is chaotic. It is taught unscientifically, at wrong times, and not continuously enough to permit of bringing its incentives to bear effectively. It may be advantageously begun (in the form of stories and biographical sketches) when the child begins to read, and should be continuous, or recurrent, in this form up to the age of ten or twelve. This is the period for collecting data, not yet correlated, of course, for the child is young, but full of inspiring ideals chiefly ethical in character. When the age above mentioned is reached, the method of instruction should commence to change. The child is now mature enough to form and express opinions of some value, and to enjoy doing it. This is the period during which training in probable reasoning and the formation of opinions should go on. When the student has arrived at the time for leaving the secondary school, his mind has very nearly reached the limits of its physical growth, and the period for original investigation and comparative study has arrived.

If what I have thus advanced be correct, it is plain that the formal study of general history has no place in the secondary schools. The simple reason is that the pupil is not mature enough; he has not

acquired the data necessary; nor would he know how to use them effectively if he had.

Notice that the argument is not directed against history in general, nor against general history in particular. I admit, and have explained why I admit, the value of the subject; but I insist that it presents a difficulty extremely troublesome to the young, and that this difficulty will be needlessly and uselessly complicated by substituting the general for the special.

This does not mean that the pupil has not been comparing and generalizing. He has been, if rightly taught; but such work has been incidental and illustrative, not formal. I have seldom been more interested in an educational paper than in that presented by Professor Salmon in the *Educational Review* for September, 1896. With her general scheme for the subject as a whole, I find myself in agreement, but in regard to her conclusions as to time and place, especially as illustrated by her diagram and enforced by her analogies, the case is different. My experience warns me that her radii are too short; that is, she expects more rapid advance than is either possible or wise. The sectors of her circles cannot be filled out in the time she implies, and in many cases these sectors must run beyond the inner circles to which they belong before the other sectors can be completely filled. The reasons for this, as they appear to us, we have tried to indicate. They are, in substance, lack of time and lack of maturity.

Boston, if I may use one or two of her analogies, is an intricate city, and no one climbs Bunker Hill Monument to learn it. If he does, he fails. Mountains are excellent positions from which to collocate and compare, but the lowlands must be crossed to reach them. In order to gain such summits, time, effort, and maturity of muscle are needed, and the analogy holds in relation to points of mental uplift. Baedeker is an admirable guide for the superficial or for the mature, but not for the young. A landscape is unintelligible to one who has no mental images which will explain its parts. We cannot generalize without previously acquired data.

No; history is a curious complex of things easy and things hard. The story part is easily grasped by young minds, but the other and really valuable parts — the power of the influences which led to action, the play of motive, the effect of results, the comparison of influences, of motives, of results, and of characters — these are things not easy even for the mature.

Let us then confine our historical instruction in the secondary school to what our youth can grasp and not revert again to too early generalization, and thus end in defeat. For hasty generalization means superficiality; superficial work never commands permanent interest; power is not thus gained, and the great aim of education is no nearer attainment. One does not in this way become either more happy or more capable of service to himself or to others.

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THE IDEA OF A UNIVERSITY

LADIES AND GENTLEMEN :—In arranging the programme of the convention, the executive committee desired that an opportunity should be given to express whatever consensus of opinion might have been reached, as the result of the discussion of the last few years, in regard to those fundamental questions of college and of secondary education which have come up so often for our consideration. They did not, of course, imagine, that in place of the agnosticism and the groping in educational matters which is now so prevalent, there would result from this discussion—from the labors of this convention—a creed of ecumenical validity, which we should adopt and go home and practice. They did, however, feel, that, as during the last eight or ten years we have constantly been discussing points on which we have differed, there might, if we would but collate our views and throw the conflict of ideas into one common ferment, result what I may call a practical working theory of secondary education. How far the judgment of your committee may be at fault in this matter, or how far it will be borne out by the facts, it lies, of course, in your equity to judge. I had myself urged upon the committee that instead of the annual presidential address, we should this year, as the session was a somewhat short one, substitute a regular evening meeting, which should also be given up to the consideration of these important themes. But they were inexorable and insisted that the usual address should be given; and, as for subject, they, kindly suggested that the whole universe lay open to me, provided only I did not discuss themes which had been assigned to other speakers. Proceeding by this process of exclusion, I found myself at last attracted to a subject to which I was somewhat naturally conducted by the nature of my interests, by my tastes, by my training,—a subject, also, which, of recent years, and even of recent months, among our-

selves, has given rise to a good deal of discussion in the newspapers, and the periodicals, and the higher organs of literary expression.

The subject which I have chosen is "The Idea of a University." I am quite aware that it is a large theme; and that, if there be any consensus of opinion on the other topics which we have here been discussing, it is likely enough that even after I have finished you will not all be exactly in accord with me. Nevertheless, I thought it worth while to lay before you the views which I had come to entertain upon the subject; and my object has been to determine—I do not pretend to have reached any great result in the matter—but my aim, at any rate, was to endeavor to determine what the constitutive ideas of a university might be, and what had been the nature of their historical development. In other words, to look at the university from the point of view of its germinal idea, and of its historical evolution, is, at any rate, the problem I have set before me. And I flatter myself that the subject will not be out of keeping with that more general theme to which the committee has invited your attention; for if we can but determine approximately the true idea of the university, the discovery cannot fail to throw light upon those perennial problems of the relation of the college to the university, and of both to the secondary schools.

Now, ladies and gentlemen, when I addressed myself to this subject, the first thing which impressed me was the recency of the institution with which we are dealing. We habitually associate the university with that knowledge and culture of which it is the most potent instrument and agency. It is a natural association of ideas, and most inevitable; but from the point of view of history and chronology it is altogether perversive of the facts. Knowledge and culture, and the higher civilization existed long before the foundations of the oldest universities. As a wise man once said: "There is nothing new under the sun," it may also be said that the university is no new thing in the world; but in so far as we talk of anything new—the American Revolution, the Roman Empire, the papacy,—in the same sense we may

speak of the university as a new phenomenon, and, as I said a moment ago, a recent, a modern one. The oldest university is not much more than eight hundred years old, but science and medicine, and theology and law, and all the higher things in civilization take us back beyond the dawn of Christianity to the Greeks and Romans, and to those mysterious peoples of the Orient,—behind whom, even in that remote period, there loomed a still venerable antiquity. This thought is worth, as it seems to me, dwelling upon for a little; because in the first place it may give us some adequate conception (which, through the machinery of education, we are constantly apt to overlook) of the creative power of unschooled mind. If anything can set us right in this matter, if anything can show us the altogether secondary position which educational institutions occupy in the history of human culture, it is surely this thought, that the great intellectual and æsthetic achievements of Greece, for example, all that Athens achieved in art, literature, and philosophy, preceded by some fifty generations the emergence of the earliest university; and this brilliant age, the age of Phidias, the age of Sophocles, the age of Pericles,—the great achievements, I say, of this brilliant age were the products of men who knew no foreign languages, whose acquaintance with science and mathematics and history was below that of Macaulay's proverbial schoolboy, and whose knowledge in other things was, I suppose, confined to the elements of logic, rhetoric, and oratory. The university is the potent instrument—certainly in our days—of the higher civilization, and especially of that culture which constitutes its most intellectual element; but the university is vastly later than these.

The second thing which has impressed me while thinking upon this subject is that we constantly misunderstand (at any rate, if we apply the historical criterion of judgment) the nature of the university. John Henry Newman, in his work on "*The Idea of a University*" (the only work, so far as I know, in the English language, which deals with the subject that I have chosen as the subject of my address) lays down, in the very

preface, a thesis which chimes in with our own natural way of thinking; but which, I am sure, is altogether erroneous. That subtle master of dialectics says: "A university, by its very name, professes to teach universal knowledge." It was in the fifties—1852, I think—when Newman wrote the dedication to his "Idea of a University;" and there have been many changes in the half century which has elapsed: an enlargement of knowledge, an interest in new intellectual fields, a changed attitude towards authority, a metamorphosis of the *Zeitgeist*; so that much which Newman wrote, and wrote so well, has become obsolete through the mere lapse of time. I suspect this is also true of the fundamental theses of his "Idea of a University." Certainly, when he claims that the university, by the very nature of its essence, aims at teaching universal knowledge, he flies in the face of history. I am far from saying that in our day it may not be a captivating ideal, and perhaps a necessity of our civilization, and I certainly am not likely to forget that the founder of at least one modern university aimed to make it (the ideal always far outruns the fact), but he *aimed* to make it, "an institution where any person can find instruction in any study." That may be, for us, I say, a quite intelligent and natural and necessary aim, but historically considered it is absolutely without foundation, if you erect it into the notion of the constitutive essence of a university. Universities did not aim, in the first place, at teaching universal knowledge, and in the second place, if I may dwell for a moment on the mere word (and Newman's argument is an etymological one), the word "university" does not mean a university of faculties, it does not mean an institution which is the nursery of every kind of learning and scholarship. The word "*universitas*" implies etymologically simply a number of persons, a party, or, in its more formal sense, a corporation of any kind whatsoever, and in the twelfth and thirteenth centuries, when universities were being founded, the term "*universitas*" was not one primarily applied to them at all in the sense in which we apply "university," but another, which I shall deal with a little later on. When the word "univer-

sitas" was used, it signified simply an aggregate of persons: the guild of scholars, for instance, at Bologna, the guild of masters at Paris, or at Oxford. I use the term "guild" of set purpose, in order to bring out clearly the relation between the scholastic craft and the other trades-unions of the time. Whenever men came together in the twelfth and thirteenth centuries they formed such guilds, so there were guilds of tailors, and of carpenters and other mechanics, and there were city guilds or municipalities, and to each and all of these, the word "universitas" was applied in exactly the same sense in which it was applied to the guilds of scholars, or to the guilds of masters. Newman's etymological argument is therefore utterly fallacious. Furthermore if we consult history we shall find, that as a matter of fact, these earlier universities did not aim at representing, in their faculties, every branch of learning. There never was, for instance, a faculty of medicine or law at Oxford University. Bologna University became famous for its school of law. Salerno was nothing but a school of medicine, and at least two universities—Sarasota and Erfurt—were simply schools of arts, or what you would perhaps call colleges alone. Neither etymologically nor historically, therefore, is there any warrant for the statement that, as Newman declares, "the university aims at teaching universal knowledge."

What we call a university—*universitas*—did not, in the twelfth and thirteenth and fourteenth centuries receive that designation at all. What we call the university was then called a "*studium generale*"—place of general study, you would perhaps translate it. No, the "general" lay not in the multiplicity and variety and comprehensiveness of subjects taught, the "general" lay in the number of patronizing localities. It was not an institution where all branches of learning were taught, but it was an institution to which students came from all parts, and in the twelfth century, the close of the twelfth century and the beginning of the thirteenth century—there were a very small number—three—of such "*studia generalia*."

Let me now glance very briefly at these institutions, and

then I shall go on afterwards to speak of what seem to me their essential characteristics. I will say, first of all, that when the eleventh century closed there was but one university in the world, that was the University of Salerno, and when the thirteenth closed there were not more than six: Salerno and Bologna and Paris and Oxford and Reggio and Montpellier, these and no others. I ask you to think, for a little while, on what is involved in the making of a university, and why it was so new a thing in the world, when Salerno and Bologna and Paris came into existence. Clearly, we may have knowledge and culture without universities, as I have already indicated by great historic examples, but you may also have teaching without universities. It is not necessary that the different teachers should come together and form a school; it is not necessary that such combinations or corporations of teachers should receive privileges and franchises; it is not necessary that requirements for matriculation should be laid down, courses of study and requirements for graduation prescribed. These were the peculiar features of the formal "study" of the *studium generale*; these are the peculiar features of our universities, and all these, ladies and gentlemen, originated with the institutions I have just mentioned.

The middle ages, the historians tell us, were characterized by their genius for embodying ideals in institutions. That is the work which the middle ages have done for our civilization, and the three great institutions, historians tell us, which they built up were the university, the church, and the empire. A writer of the fifteenth century classes these three institutions together as the three sustaining powers and virtues of Christendom. It was felt in the middle ages that in the university a new and a potent institution had arisen.

Now let me go back to the specimens which I have mentioned. I am not going to consider all six which I have mentioned; Salerno, which arose about the middle of the eleventh century; Bologna, which arose towards the close of the twelfth; and Paris and Oxford and Reggio and Montpellier, which fol-

lowed soon after. Reggio, for instance, was a mere offshoot from Bologna, although it was called a "*studium generale*." That was due to the accident that the towns around about were autonomous—were separate states; and therefore, although topographically considered they were close together, yet the students from them would of course hail from different states, and so gave the institution the name of "*studium generale*," or a place of general resort. That was a mere accident. Besides Reggio is not worth considering for another reason. In the thirteenth century it disappeared altogether. Nor shall I say much about Oxford, because it is an offshoot from Paris. Oxford owes its origin to the migration from Paris, which took place towards the close of the twelfth century—a migration probably due to the summons of Henry II, after his quarrel with Becket, to the benefice clergy who were studying in Paris, to return home as they loved their benefices. And, all loving their benefices, they did come home and set up a "*studium generale*" at Oxford. We shall, therefore, not speak of Oxford in any detail, because it is a university of the Parisian type. And although the "*studium generale*" at Montpellier was probably an independent institution, although it was not an offshoot of either of the others, yet it was dominated very largely by Bologna ideals. Accordingly we are left with but three primitive institutions, Salerno and Bologna and Paris. Of these, as I have stated, Salerno is the oldest. It was never more than a school of medicine. Why it should have started up in Italy early in the eleventh century (for it certainly was famous in the middle of the eleventh century) we cannot perhaps altogether understand. But some circumstances will at least help to make it clear why culture should have sprung up somewhere in old Magna Grecia. Classical tradition still lingered there with the classical literatures and the medical writers of the ancient world were known. And Salerno being a health resort, it was very natural that if any sort of school were to spring up in the region, it should be a medical school. At any rate, Salerno began and continued as a medical school; it never had any other faculty; and what is

perhaps still more strange, it never, so far as we know, gave rise to any other institution. That, I say, is a striking fact; because there is nothing more remarkable about Bologna and Paris than their reproductive capacity. They gave rise to numerous other institutions; but Salerno was doomed to infertility. It ended as it was at the beginning, as a school of medicine; and what is more, the other great medical schools of Europe were uninfluenced by its traditions. No virtue of any kind went out from it; and so it happened that the traditions of this earliest school of medicine died with itself—they were not reproduced elsewhere.

Turn now to the other two institutions I have mentioned—Bologna and Paris. These, ladies and gentlemen, are the two great typical universities of the world: one of them, Bologna, a guild of scholars; the other, Paris, a guild of masters. I would like for a little time to dwell on that word “guild” and explain why such guilds of necessity arose, and also the difference between the two. I have already alluded to the object of associations in the middle ages. The cities of northern Italy were free republics. The traditions of Roman law lingered in northern Italy much longer than anywhere else; and in the free life of these northern Italian cities, it is easy to understand that developments of law should take place, and, in time, the need of some institution to extend the knowledge of it. At any rate, somewhere in the twelfth century such a school of law was formed at Bologna; but the strange thing about the school thus formed is that the corporation, the guild, the “universitas,” was not a corporation of professors and teachers, but of scholars only. And why? Because the scholars who flocked to that “studium generale” from all parts of northern Italy, sacrificed their own citizenship. The inhabitants of the cities of northern Italy valued citizenship as the citizens of ancient Greece or Rome did; and so it was natural when they came together in a foreign city, losing the franchises of their own home, that they should form themselves into a quasi-republic, a new city, a new organization; and this, I say, would have been an easy thing for them to do, considering that they had before them, among the mechan-

ics and in the municipalities, a perfect model which they could easily imitate. Consequently, the University of Bologna became a corporation of students. But there was one other limitation; Bologna students were excluded. This is easily understood, for Bologna students, not having left their own homes, enjoyed those privileges and franchises which the visiting students had forfeited in coming to Bologna. The interesting thing about this earliest university, this guild of students, is that it took—as we say in common parlance—the law into its own hands, dominated the professors, and at last subjected them to the most humiliating servitude. The guild of students made statutes, which of course their own members were obliged to obey; and these statutes, in the course of an incredibly short time, they managed to impose upon the professors, who were compelled to take the oath to obey them. And the professor, in the discharge of his duties, might at any time be interrupted by an officer coming from this haughty corporation of students, dictating to him, by public proclamation, how he should do his work. They made the minutest regulations regarding the lectures; the professor was to begin promptly at the moment and end also promptly at the moment (laughter)—he was not to take holidays except by permission of the students; and as it happened in those days, as some of us know by painful experience it happens in Germany and perhaps elsewhere still, that a professor will exhaust the larger part of the time allotted to him in dealing with the bibliography or introduction to his subject—this wise corporation of students stipulated, and made it one of their statutes, that the professor should cover, during the term, the whole of the book, or of the subject, assigned him. Never were professors so domineered over as they were by this bullying corporation of Bologna students. The rector was the officer who represented their authority. They chose him. It shows in a very striking way how the features and traditions of these earliest corporations survived to our own time, that only this month the students of the University of Glasgow filled also, in the ancient way, that venerable office of rector. The students of

the Scottish universities enjoy a franchise given no one elsewhere throughout the English-speaking world: they have the right annually—at Bologna it was, I think, biennially—but in the Scotch universities they have the right annually to elect some distinguished man as their rector. Of course, in the days of Bologna, that rector was the depositary of their authority and the exponent of their will—the personality who embodied in himself the “universitas” or guild; but in Scotland, this dignity has now become a mere supernumerary; and when, as I said, the other day the Right Honorable Joseph Chamberlain, secretary for the Colonies, was elected rector of the Glasgow University, he was chosen by the students, but instead of having charge of the entire institution, as his predecessor at Bologna had several centuries before, his sole function consisted in making one speech to the student body.

The University of Paris is the other type. It was not a guild of scholars—it was a guild of masters; they formed the corporation; they made the statutes; they laid down the laws regarding the educational work of the institution, the method of teaching and all the rest of it; and that is the type of university which, through its connection with Oxford, we in the English-speaking world have become so familiar with. I do not want to dwell longer on either of these institutions; but I do desire to call your attention to what I consider the essential, the peculiar function of this Parisian guild. It was a guild of doctors. Now, every guild had the right to regulate the conditions of membership. What more natural than that these masters should also lay down the conditions under which others should join the guild? The process of joining the guild, or, rather, the act of joining and being initiated, was called inception or commencement; and that is the origin of the word by which we describe the close of the scholastic year. The student who had satisfied the requirements laid down by the guild of doctors was incepted—commenced—as a teacher; and the inception process, or act, consisted of giving, as he would be required to do when he became a master, a lesson to the stu-

dents, after which he was invested with the ring and the book and also with the cap, and I may add that here too we have an interesting survival of that process. We now charge our students a fee for their diplomas; I do not think there is any university or college which grants them without it. That fee, ladies and gentlemen, is commutation money; and what it relieved the graduates of earlier centuries from was the necessity of entertaining the members of the guild into which they were being admitted at an expensive banquet, and of presenting these learned dignitaries with caps and canes and gloves and sweetmeats. Thus, in those days the idea of a newcomer paying his footing prevailed alike among the professorial bodies and among the students. Such, then, was the original meaning of our term "graduation." And when I say that the essential features, the time-honored usages and traditions of our modern universities, all go back to the two typical institutions of Paris and Bologna, you will see from the examples I have adduced (if there were time I could mention others) that considerable justification can be adduced for the assertion.

Without lingering longer over the historical side of the case, let me invite your attention, in the next place, to what seems to me the characteristic features of these institutions. The first is, no doubt, that indicated by the name "*studium generale*," a university is a place of general resort. It is a place to which students come, not only from the neighboring locality, but from a variety of localities. That was the fundamental idea of the "*studium generale*," or primitive university. But that was not all, even then; for, although it was the dominating idea, it was always implied that there should be at such an institution, first, a plurality of masters and, secondly, that at least one of the professional faculties should be included. I have mentioned already that there are exceptions even to that rule: Erfurt and Saragossa were simply faculties of arts; but the exception does not, after all, detract greatly from the validity of the general statement I have made, that, along with being a place of general resort, the "*studium generale*," or university of the middle ages,

was an institution where there were a number of masters, and where at least one of the professional faculties was to be found.

But there is another point to which now, in the second place, I wish to call your attention, and it is this: that the universities of the middle ages laid stress—as it was inevitable they should lay stress—on personality. They had no books; they had no buildings; they attended lectures either in the teacher's house or in rented rooms; and that very fact—the absence of all sorts of material and mechanical appliances—tended constantly to bring teacher and pupil face to face. The fact that the first universities had no material equipment, neither houses nor property, always made it easy for them to migrate; and migrations, or boycotts, were a remedy to which they had frequent recourse; and it was in that way that the corporation of students in Bologna could domineer over the masters. It was a profitable thing to have a "*studium generale*" in a city; but if the professors and the city authorities refused to do what the students wanted, all that was necessary was to boycott them and go elsewhere. Even Oxford University suffered boycotting in the same way, and until very recent times graduates were required to swear that they would not found a "*studium generale*" at Stamford, to which there had been a migration centuries ago.

But to return to the point from which I have digressed. It is interesting to see how great personalities, not only maintained these universities in their vigor, but lay, in a certain sense, at the foundation, if not of all of them, at any rate of the two typical institutions we know most about—of Bologna and of Paris. Ladies and gentlemen, the University of Paris came into existence at the close of the twelfth century. Abelard had come up to Paris as a student to study under William of Champeaux, who taught in the cathedral school, and he soon found himself, as he deemed, superior to his master and called in question his teachings, which of course was a mortal offense at that time, and he was persecuted for it. I have not time to go into the history now, but it was by the work which he did in dialectics, or metaphysics, and in theology that the atmosphere of France,

of northern Europe, was prepared in the course of one or two generations for the foundation of a "studium generale;" and it is because Abelard lived and worked and taught that the University of Paris became conspicuous for its theology, and not, for instance, as Bologna did, for law. Again, at Bologna—which, as I have mentioned, was founded about the same time as Paris, a little earlier, somewhere about the last third of the twelfth century—in the middle half of the twelfth century there lived a great lawyer named Irnerius; and Irnerius introduced the study of the Roman law—not, indeed, of parts of the Roman law, for that was already in effect in Bologna and possibly in other institutions in northern Italy—but he it was who first introduced the systematic study of the whole *corpus juris civile*; he it was who laid stress on the professional study of law, on the scientific study of law; and because he lived and did the work he did, it was possible, a generation later, for the University of Bologna to blossom forth; and whatever other characteristics belonging to the mediæval universities we may in modern times abandon, let me assert—and assert here, I know, without fear of contradiction—that we never can have a university without having men to make it (applause).

The third characteristic to which I should like to invite your consideration is this: the universities of Paris and Bologna and all mediæval universities sprang out of the practical needs of the people. I do not know whether there is anyone here who is disposed to call that utilitarianism, or to go further and brand it as commercialism; but, whether these terms be used or not, the fact is beyond contradiction. Salerno, as I have said, produced a school of medicine. Salerno was a health resort, and invalids came there; the climate was salubrious; there were mineral springs in the neighborhood; and a medical school was a necessary, or at any rate, was a very advantageous addition to the attractions of the place. It grew up naturally in connection with these needs. In the same way, as I have already said, Bologna and the cities of northern Italy had before them that great practical problem—for it was much greater in the middle

ages than now—of maintaining law and order and liberty. They inherited the Roman law as a system by which these results might be achieved. The foundation of the school of Bologna simply met an existing practical need; and if someone thinks that Paris, or Oxford after Paris, founded institutions for the cultivation of knowledge or learning as such, let me point out that Paris and Oxford, too, were in their inception, as they remained for a long period during this early history, mere professional schools. They had their faculty of arts; and, therefore, I ought not to have used the term “mere professional schools”—they had their faculty of arts, that is true; but dialectics and theology ministered as much to the practical and urgent needs of the men of northern Europe as law did to the people of northern Italy; and, furthermore, in northern Europe all the lay professions were open—were practically open—only to churchmen; so that it is quite true of Paris and Oxford as it is of these other institutions, that they met practical intellectual needs. In this connection I think it is worth while observing that the university of our day, which supplies schools of applied science and medicine and law and veterinary science and architecture is playing the same part in the closing years of the nineteenth century as these institutions of Bologna and Paris did in the twelfth and thirteenth centuries. They are ministering to the practical and intellectual needs of our people. I do not use “practical” in any low and narrow sense in either connection; my meaning is simply this—that the people of mediæval ages and the people of these modern times have a certain work to do—certain callings and professions which they will follow; and that a university, now as then, has to set it before itself as aim to teach the sciences and supply the intellectual training which enables the followers of these pursuits to discharge their duties more efficiently. I mean, however, nothing low in the conception of education—far from it; I am simply insisting that the conception of today shall be broadened so that our universities shall be to our generation what those mediæval institutions—“*studia generalia*”—were to theirs.

And the next thing which I want to emphasize is this: that the history of universities from the time of Paris and Bologna down to this very year, proves one thing—that if they are to do their work well, the teachers must be absolutely free (applause). Knowledge is a thing which cannot be commanded. The truth of propositions cannot be established by councils or by tyrants, whether those tyrants be aristocratic individuals or whether they be democratic communities. We have to discover the truth the better to teach the truth; and as we know from our own experience, so the history of these institutions proves, that that work is done efficiently, so that we are true to the ideal of our vocation, only when we can be absolutely free. There has been some talk of late in our own country of the accountability of the universities to the public; and we have been told by reputable organs of opinion, that while liberty must be, of course, conceded to the universities, license will not be tolerated. Ladies and gentlemen, there is no liberty in things intellectual unless it is absolute. Of course, if a professor is immoral—if he violates the laws of decency or propriety—he is dealt with on that ground; but in things intellectual it is absolutely impossible to lay down any limit whatsoever except this; that teachers must teach and discover what God gives them to see of the truth (applause).

I wish I had time to illustrate the baneful consequences of interference with the right of teaching in some of the greatest universities of the world. I have alluded to Oxford once or twice; let me once more cite from its history. The Tudor kings regarded Oxford as an instrument of statecraft, and the position of the university—its officers too—were changed with every change of administration. When the Stuarts came in, Oxford University passed a solemn resolution that it was illegal to resist kings; and that was repeated during the worst period of the Stuart government. The Stuarts interfered with the election by the fellows of the heads of the colleges. They had favorites of their own (altogether unqualified for the places) whom they desired to see put in them.

But the whirligig of time brought its revenge. The follow-

ing century was one of the lowest in the history of Oxford University. It was a period of stagnation; and when Gibbon was there in the middle of the eighteenth century he declared that the university professors had practically given up teaching, that the college tutors and professors passed their day in a monotonous round of employments in chapel and hall; and they retired in the evening to bed exhausted and satisfied with a long round of indolence and indifference. And Jeremy Bentham, who came only a little while afterwards, tells us that whatever else Oxford education might have produced, there were two features on which everyone could count: these were mendacity and insincerity. Once interfere with the liberty of teaching—once put any kind of authority over the man who occupies a university position other than that of his own intellect and conscience, and the results which Jeremy Bentham described at Oxford University, will inevitably follow.

Now there is another matter to which I should like, in the next place, to invite your attention. You have been discussing today the relation between colleges and universities. And my friend, Mr. Dewey, is anxious, I believe, to get up a league of what he calls small colleges; and I suppose the league will change from year to year because these colleges are all progressive; and after a little while they will cease to be small colleges and the league will break up. But it is supposed that you can lay down certain marks which differentiate the college from the university, and that it is exceedingly important at the present time that a clear line of demarcation should be drawn. I shall not undertake to draw that line; but I do want to make a few observations on the historical relationship between the college and university. If the university, as I have said, is comparatively new (the oldest not more than eight hundred years old), the college is younger still. The college is the successor of the hostel, or boarding house. The college, in its earliest form (ladies and gentlemen, I speak respectfully of the colleges) was a mere organization of students under one of their own members whom they elected as head or principal for the purpose of

providing for board and lodgings. The university had no kind of homes for the students who were compelled either to live in private houses, or a group of them might take a house by themselves and organize in the way I described. These were originally called halls; and at Oxford University last summer I found and took much interest in visiting the sole survivor of that venerable system, St. Edmund's Hall. The other halls have all been turned into colleges. I will speak of the transition in a little while, but I am very anxious to impress upon your minds the fact that the college originally was simply a hall of residence, or, better still, a boarding house taken by a group of students who elected one of their own number as head of the hall. He did the catering, and he administered their self-imposed statutes.

We hear it said sometimes that colleges are a peculiarity of the English-speaking world. Never was there a more misleading assertion. The halls out of which the Oxford Colleges have grown were a universal institution. Such halls or colleges existed in Bologna, in Paris, in various German and Spanish universities, and elsewhere. To this day the oldest of the universities, Bologna, has still its College of Spain, which was a boarding house, founded or endowed by a Spanish ecclesiastic soon after the establishment of the university itself. And in Paris, at the close of the fifteenth century, there were at least fifty such halls, and they were almost all called colleges there, although their functions were scarcely at all different from those which I have just described as the halls. There were some fifty of them, I say, in Paris at the close of the fifteenth century. The transition from the hall—from the voluntary organization of students, with one of their own number as agent, caterer, or principal, to what we know as the Oxford College, was effected in this way. By degrees the university authorities found it expedient, for the sake of discipline, to get some control of these halls, and so they managed in time, by a process which I cannot now describe, to get a voice in the appointment of the principal. That was the first step. The next step was this: when money was left for the endowment of such boarding

houses, or halls, it was provided by some benefactors that instruction should be given to the boys in the colleges to supplement, of course, and prepare for the instruction given in the "studia generalia," or the universities themselves. The Paris halls never got beyond that intermediary stage. They, in their highest state of development, remained boarding houses, over which the university exercised a kind of supervision, and in which there were fellows, or masters, or teachers, who aided the boys in preparation of the university work. But the Oxford institutions underwent a third stage of development, and that was due, one might say, to the accident of endowments, and notably to the endowment of Merton. Merton College was founded about 1264, becoming the model of all subsequent foundations, and Walter Merton, who founded it, provided that there should be, in his college, a number of fellows who should be maintained out of the endowments he left for that purpose, and that these fellows should have charge of the property. That is the unique feature about the Oxford institutions at this period. They became corporate land owners. And let me say in passing, one could not have a more splendid justification of the wisdom of these princely benefactors, for of all the endowments that have been left to Oxford and Cambridge Colleges not one has been lost; whereas, in the case of the Parisian halls, where the endowment was left to outside corporations, in nearly every case it has disappeared, and the only remnants we have of these Parisian colleges are the names which they have given to a number of the streets in the Quartier Latin. This was the final stage of development through which the students' boarding house passed. It became a college, in which instruction was given the students, but still merely supplementary to the work of the university. But in those degenerate centuries, which I described a little while ago, when Tudors and Stuarts were interfering in the university, and when its functions fell into disrepute, the good work was done by the colleges; the colleges were progressive; the colleges adapted themselves to the needs of the time; the colleges were champions of the new learning.

The university, in all its functions, fell practically into desuetude; and it is only within our own century that we have seen Oxford University, as distinct from the colleges, taking on new life, appointing university professors, and making provisions for university instruction and for university research. But before that change had taken place there had come migrations to this country, and the American college had been set up; and the American college we set up was intended to conform to the Oxford College of the day, or the Cambridge; and John Harvard came from Emmanuel College at Cambridge. There was then a congeries of college institutions, while the university out of which they grew, and to which they originally were mere boarding houses, was practically defunct.

It is unfortunate for our higher education that our colleges originated in that way and at that time, but such is the fact. You know how in this country the college has, in some cases, been transformed into the university, and what problems we are grappling with today in order to adjust the relations between them. I do not know how the relations are to be adjusted, but I am confident from the point of view of the university (and I say it out of no spirit of hostility to the colleges, for I believe the colleges are going to continue and do a more important work than they have done) that it is a mistake—a fundamental mistake—if you suppose, ladies and gentlemen, that the colleges in this country, or in any other country, are going to take over a large portion of the work which the universities here are doing, and which the universities have always done. Some gentlemen suppose that a university is a collection of professional schools. It never was that; it will not be that here. There will always be in the universities, as there has been in the past of all the great universities, what we call the academic department, and what the Germans call the *philosophische Fakultät*. The colleges are not going to take it from the university. The university, without that, would be robbed of its most important department and would feel the loss of its best and noblest inspiration. That is going to stay; but there is no reason why, if the university

retains these various departments and functions which historically belong to it, the colleges should not also work, if you like, along the same lines—or, if you like, along other lines. There is room for us all. It is a field broad enough for generous rivalry and emulation. We can all put in our oars, and we will all find abundant water to row in. But there is one thing which I think the universities and colleges must keep especially in view, and that is what Mr. Rashdall says characterized the universities of the middle ages from beginning to end—they trained up a race of educated men to administer the affairs of the world. That, and nothing less than that, must be the aim of our own higher institutions of learning. And in pursuing that aim, along however various lines, I see no reason why there should be friction, or jealousy, or envy; why, on the other hand, there should not be the utmost good feeling and hearty and cordial brotherhood between our colleges and universities and the men in them who are dedicated to the high work of educating the rising generation and upholding and extending the divine light of knowledge (applause).

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WHAT IS THE CONSENSUS OF OPINION AS TO THE PLACE OF SCIENCE IN THE PREPARATORY SCHOOLS?

THE first professor of physics and chemistry in the United States took his chair in the College of William and Mary in 1774. About seventy-five years later, scientific schools were started at Harvard and Yale, and the Smithsonian Institute opened its doors. It was not till 1865 that the first physical laboratory for the use of students in the United States was opened by Professor E. C. Pickering at the Massachusetts Institute of Technology. Scientific science teaching, that is by the laboratory method, has, therefore, been developed within a period of a little more than thirty years; and the greater part of the growth has taken place during the past ten years. As an instance of the rapidity of this growth your attention is called to the fact that of the twenty-one representative colleges and universities reported upon by the United States Commissioner of Education in his annual report of 1886, seven, or just one-third had science requirements for admission. By reference to the report of the committee on college entrance requirement in the SCHOOL REVIEW of June, 1896, you will find that fourteen, or just two-thirds, of the same twenty-one institutions have science requirements for admission. Nor is that all; a comparison of the two tables shows a substantial gain both in quantity and quality of such requirements. When you compare the present condition of science, both in the secondary schools and in the higher institutions, with that of a few years ago, the development seems little short of marvelous. But the change has not taken place without a contest. The war has been, for the most part, between Latin and Greek on one side and the physical sciences on the other. The third member of the ancient triumvirate, mathematics, has caused little contention. Indeed the

tendency has been to increase the amount required without serious protest from either side. English, history and the modern languages have also come in for a share of the discussion ; but the real tug of war has been, and is, between the classics and the sciences.

The contentions of the classical advocates were these :

1. The classical programme embodies the best thought of the best minds, and it has to show as its products the majority of the master minds of the past four centuries. It has stood the test of time, and is entitled to the consideration that attaches to an established position.

2. In spite of the fulminations of the scientist, practically all of the colleges still require the classics for admission, and this is a strong presumption in their favor.

3. The mastery of the traditional subjects renders the mastery of other subjects relatively an easy task.

4. Experience has proved that when different courses in secondary schools are offered, the superior students almost invariably choose the classical course.

5. The classics, as a means of securing that general training which prepares the youth for meeting successfully whatever emergencies may arise in life, have no rivals.

6. The proper effect on the minds of the pupils cannot be produced without prolonged study, and anything less than the time now given them in the preparatory schools is inadequate.

7. The superiority of the classics over living languages which the scientists would substitute for them, lies in this: a living language does not so readily lend itself to purposes of dissection and grammatical formulation as does one that is no longer subject to evolution, hence the study of the classics can be made more scientific than the study of modern languages. Besides the ease of acquisition of the modern languages impairs their efficiency as disciplinary studies.

8. The intrinsic merits of the literature of the classics are such that there comes from their study a mastery of style, an elegance of diction, not to be secured in any other way. More-

over, the arts and letters of the civilized world are Greek, as its laws and history are Roman; and to study a subject scientifically you must study its embryology.

9. The introduction of the sciences in the programmes means a loss to the system without any assurance that the new subjects will make good the loss.

10. It is essential to any proper mental training that a lad should master not only what he likes, but what he does not like. Science studies, because of their showy character, are attractive to the immature; so pupils, if given their choice, will take the sciences and drop the more difficult culture studies.

11. Too much science study tends to lower our ideals, and will cause us to degenerate into a mere money-getting and pleasure-getting people.

12. The constant use of the more rigorous and exact methods of science tends to unfit men for dealing with human questions which are more inexact in their nature.

13. The student of science is always exercising his intelligence on a limited part of human experience, while the student of language in the extended sense may be said to be always in contact with the whole. The humanities, alone, truly educate a human being.

On the other hand, the scientists argue:

1. The sciences are a most valuable aid to work in language, since the written results of every experiment is an exercise in English.

2. Science study, more than any other, gives discipline of the powers of observation, of logical thought, and accurate description.

3. The classical students are broadened by contact with science study, just as the scientific men are more liberal for having studied the humanities.

4. Among studies of equal disciplinary value the true criterion is the use that may be made of the subject in future work.

5. The influence of the study of science on modern thought is shown by the terms "laboratory method" and "scientific

method" as applied to economics, history, and even language and literature.

6. The marvelous industrial progress of Germany, as compared with that of other European countries, is due to the superior skill and wisdom of her men of science; and every student when he enters the university has had nine years training in science work.

7. The study of the sciences, especially of the experimental sciences, induces a love for experimentation, investigation and discovery.

8. The ignorance of natural laws is the basis of all degrading superstitions. The study of science more than that of anything else demonstrates in an intelligible way the reign of law in the universe.

9. Each age brings new demands. The scholastics have had their day. It is supreme folly to ignore science the applications of which are such an important factor in our life of today. Through the study of science every child is better fitted to cope with his environment. Strict humanism means education today in what was the best thought of the human race five hundred years ago. It ignores the grand achievements of the age. The old is out of harmony with the times. It is narrow and not liberal as it professes to be.

10. The utility of all science and of all knowledge consists in an ability by the aid of it to foretell the future. It is the study of science that most surely enables one to predict. The exactness of the science of astronomy is a case in point.

11. Nothing but stern objective realities can constitute a safe foundation for any future moral or social system. It is the special merit of science that it tends to bring the world back to nature from which it has so far wandered.

12. The claim of the classical advocate that energy created by activity flowing in one channel may be turned at will into any other channel is only a partial truth. If an effort is made to turn it into a widely different channel much is lost by leakage; just as in converting energy of chemical union into the

energy of the electric current a very large percentage is lost in the act of transformation. Hence the needs of the times demand a wider range of subjects than is offered by the classical programme.

13. The contention of the classicists that their plan is complete for all time, that they have staked off the bounds of human endeavor as regards the necessities of the growing mind, is practically a declaration that the process of evolution is suspended.

At the beginning of the controversy the scientists held that a certain kind and amount of science was a proper preparation for higher education. Their opponents denied it; but in time they came to admit that for pupils who were not going to college science might properly form a part of the curriculum. Then the scientist argued that a considerable number of pupils who elect the general course, decide late in the course that they desire to go to college; and it is unwise to cut them off from the higher intellectual life on account of a failure to foresee their necessities. Their opponents no sooner showed a disposition to weaken on this point than the scientists came out strongly in behalf of the proposition that what prepares a young person for his life work ought also to prepare him for college. From this it was but a step to the doctrine of the equivalence of studies having the same time allotment.

The truth is, there is almost an infinity of good things that can be said in favor of almost any rational subject of study, if presented under ideal conditions. But ideal conditions do not obtain. Hence it is always possible, if a speaker or writer is so disposed, to paint the results of any subject, as it is actually taught, in sombre colors; and the weakest of all argument, ridicule, is not infrequently employed. It thus comes about that there is much rhapsodizing as well as much unfair criticism on both sides. It very soon becomes apparent to a reader of the mass of literature published during the past ten years on the respective merits of the classics and the sciences that much of the argument is fundamentally weak. The con-

test at times loses its legitimate dramatic character and takes on the features of an extravaganza. Quotations from two very recent papers will serve to illustrate: "Any one, I care not who, can and will derive vastly more good from one year of any natural science than from two years of either Greek or Latin;" and this from another source, "When the machine shops and factories and all the paraphernalia of the applied sciences are imported into the academic shades, and when the perfume of the Attic violet is stifled by the stench of the chemist's crucible, the true purpose of the university is forgotten, and its higher mission is in a great measure sacrificed."

"What is the present consensus of opinion as to the place of science in the preparatory school?" The first man, an eminent scientist, to whom I put this question assured me that the answer, if printed, would read as follows: The preparatory school should give one year of experimental physics, one year of biology, and one year of physiography and physiology. The next answer received—this, too, from an eminent specialist—was this: The consensus of opinion is that there is no consensus; the dispute among the scientists themselves is acrimonious, while the conflict between the friends of the sciences and the votaries of the classics is well-nigh irrepressible. A little later, Professor Davis of Harvard wrote me: "There is no real consensus, unless to the effect that something must be done for science; but there is no close agreement as to what it shall be." The same mail brought this from Professor Butler of Columbia: "In my judgment there is nothing like a consensus of opinion among preparatory schoolmen as to the place of science, or anything else." My first interview inspired me with hope; the second gave birth to a doubt; and subsequent testimony, of which I have accumulated much, makes it clear that the question is too much involved to admit of a specific answer at present. There is no oneness of opinion, in the broad sense; the conflicting interests are manifold. Yet there is, probably, after all, a unity in the midst of diversity if it could only be found. The most that can be hoped for now is an approxima-

tion which, on the main question, can be little more than a plurality vote; on certain specific questions, however, the approximation may rise to the dignity of a majority vote.

Since the report of the Committee of Ten was issued four years ago, many secondary school programmes have been reconstructed or greatly modified. The most of the changes have been in line with the recommendations of the committee. The joint conference on scientific subjects held at Chicago passed a resolution to the effect that one-fourth of the entire high-school course ought to be devoted to the natural sciences; and the Committee of Ten declared this recommendation to be a moderate one.

During the months of September and October, I sent out to all parts of the country about 300 circulars asking for various items of information as to the place of science in the preparatory schools. About 200 replies were received. Of these about one-third came from college presidents and professors, very nearly another one-third came from principals of high and preparatory schools, and the remainder came from teachers in secondary schools.

One of the questions was: What is the "due share" of science? Is one-fourth of the entire time too much or too little? Almost 64 per cent. of those who replied favored one-fourth, while 11 per cent. thought one-third not too much. The remaining 25 per cent. were of the opinion that one-fourth is more than justice demands. A few of this last-named class thought one-twelfth of the time enough for science, but the most of them favored one-fifth. Those who placed the share as low as one-twelfth were, in every case, men connected with private preparatory schools. Thus it would appear that three-fourths of those interested in the subject are favorable to the giving of not less than one-fourth of the entire time to science. Yet a study of the recently reconstructed programmes shows that practice here, as in other directions, is scarcely on speaking terms with precept. I have yet to see a high-school programme, and I have quite a collection, which gives one-fourth or even

one-fifth of the entire time to science. A number of programmes have a system of electives so arranged that the pupil may, if he so desires, give one-fourth, or even more than one-fourth, of his entire time to science. The general course in the New York high schools is a case in point. Thus it would seem that it is pretty generally agreed that science should have a larger place in the curriculum than it has hitherto had assigned to it, but that larger place is not necessarily a required one. Various reasons may be given for this state of affairs, but the one having greatest weight is probably this: the most of the colleges as yet refuse to accept for admission any considerable share of science work.

"Should all real science work count toward admission to college?" This question came nearer bringing out a consensus of opinion than any other one asked in the circular. Almost exactly 90 per cent. answered "yes;" but a great many added "if it is *real* science work." Quite a number specified that it should not be made up of scraps, and that it should be laboratory science work.

The question "What is the minimum of time that should be given any science taught in a preparatory school?" brought out the facts that 66 per cent. favored five periods each week for not less than one year, and that 10 per cent. favored more than that amount. So the approximate consensus is that any science properly taught for one full year by the laboratory method should count toward admission to college. This is the actual requirement for entrance credit at Leland Stanford. The sentiment of President Eliot on this question, "It would be a pity if we could not adapt our courses in college to any good teaching in the schools," I find so frequently quoted with approval that it seems reasonably safe to conclude that the day is not far distant when the college will make it possible for the secondary schools to follow their own inclinations in teaching without the fear that their graduates may fail to enter college. Harvard with her new definitions, including six new options in science, has made a long step in the right direction.

The replies to the question, "Is there a distinct tendency to lessen the number of subjects in science and to devote more time to each one taught?" make it appear that the movement toward making science work more intensive and less extensive meets with greater favor in the West than in the East or South. Seventy per cent. of those who replied think there is such a tendency; but more than five-sevenths of them live west of Ohio and north of Mason and Dixon's line, while of the 13 per cent. who answered in the negative just three dwell within those limits. So the consensus on this point seems to have a distinct sectional bias.

The replies to the question, "Should a year of science offset a year of Latin or Greek as a college entrance requirement?" were peculiar because of their tartness in a great many cases. The other queries only bore incidentally on the question of the classics *vs.* the sciences. But this one touched many in a sensitive spot. "No, never," and "yes, always," both strongly underscored, were the favorite answers. Almost 70 per cent. favored the offset and 26 per cent. opposed it. The rest of the answers were more or less equivocal. Some favored the offset for Greek, but not for Latin; others answered "yes, under certain conditions; and still others thought that it should not at present, but might when the sciences are as well taught as the classics.

The sixth and last question was, "Which is preferable: (a) to divide the time allotted about equally among four branches of science, or (b) to give the pupil his choice between the above plan and one in which he gives two years each to any two of the four subjects offered, or (c) to devote four years to a thorough study of one subject, supplementing it with reading and discussion of the other branches?"

In making a choice from these three plans, the correspondent need not, of course, necessarily indorse any one as the ideal plan. The three are radically different, and my purpose in asking for judgment on them was to ascertain the trend of sentiment rather than to get an indorsement of any specific programme. The third plan is a radical one, and I did not expect

to find many favorably disposed toward it. Of the nearly two hundred answers received, 43 per cent. favored the first, 42 per cent. the second, and 15 per cent. the third. Those who declared in favor of the first plan may be properly divided into two classes: First, those who really favor giving a year to each of four sciences; second, those who chose that plan because it was the least objectionable of the three. But, of course, the same reasoning could not apply to those who selected plan two or three. Of those who chose plan three almost one-half were college men. But since there were just about twice as many replies received from secondary school men as from college men, it is evident that the sentiment in favor of specializing in the science is somewhat stronger among the latter. Now, if you consider the present state of science in the secondary schools, that the great majority of the schools give only from one-third to one-half a year to each science taught, that comparatively few give as much as one year each to two different sciences, and that almost none give so much as one year and a half to any one science, you must admit that the percentages of answers just given show a condition of mind that is decidedly favorable to the immediate future of science in the secondary school. It indicates, so far as a mere "counting of noses" can indicate anything, that there is a decided growth of sentiment in favor of devoting not less than two years to the study of some one or two sciences. Furthermore, it seems to point to the fact that the one-time hobgoblin, "specialization in science in the secondary schools," which has terrorized the timid and frightened even the bold, is losing something of its supreme awfulness. I am aware that some theoretical as well as practical arguments can be arrayed against it. Among the more potent ones are these: First, it narrows at a period of the pupil's life when a special effort should be made to broaden; second, the pupil is too immature at the high-school age to profit largely by specialization. Now I find that the most vigorous protests against this alleged narrowing process come from those who most strongly advocate a strict adherence to the traditional lines of prepara-

tion for college. That is to say, four years of Latin or mathematics broadens, but two years of physics or chemistry narrows. I have not a word to say against four years of Latin; but it seems to me that something may be said in favor of two years of chemistry. One year well spent gives the pupil a fair start in any science. At the end of a year he has learned the terminology; he has acquired a certain degree of skill in the manipulation of the special apparatus; he knows enough of the elements of that particular branch to give him a glimpse of its possibilities, and his interest is aroused. That is, he has lifted the latch and the door is ajar, but not yet open. At this point he is required to drop the subject, only to begin another which has a different terminology, requires different apparatus and a different general treatment. True, he is still to use the scientific method; but the new work is not more difficult than that which he did a year before, it is only different in kind. The direct line of thought and action must be broken, and this, it seems to me, entails a distinct loss that might be avoided. Any line of reasoning that defends specializing in language, history, or mathematics in the secondary school—and by specializing I mean presenting them for a term of years—will apply with equal force to natural science. I do not maintain that the practice of dropping a science at the end of each term or each year to take up a different one is strictly comparable with that of taking one year of English, then one of Latin, followed by one of Greek and another of French or German, but the two plans have enough in common to condemn both.

But, is it true that the pupil is too immature to make this continuous work in science profitable? An ideal curriculum is one of increasing difficulty from beginning to end. If, then, you can, for example, defend the teaching of physiography in the first year of the high-school course, I do not see how you can consistently oppose continuing the same subject the following year. If the pupil is too immature for the advanced work of the second year, it must be equally true that he was too immature for the first year's work.

It may be objected that the schools have neither the apparatus nor competent teachers for a two years' course. It must be granted that this is true of many schools, but there are many of which it is not true so far as competent teachers are concerned, at any rate. In the school from which I am a delegate there are at least four college graduates—two of them holding the doctor's degree—who would be glad of an opportunity to conduct two-year courses in science. Nor do I think that this school stands alone in this respect. Besides, the way to get a supply of anything is to create a demand. When more teachers capable of doing advanced work are seriously wanted, they will be forthcoming. Moreover, the questions of apparatus or competent teachers are not germane to the subject, for we are discussing the needs of the pupil rather than what is convenient, or immediately expedient.

Let me now call your attention to another phase of the question. Long before the child begins the formal study of number, he begins to apprehend the nature of quantity. The possession of that kind of knowledge is one of the fundamentals. Without it one can do nothing. It is as necessary to the success of the painter or sculptor, or musician as it is to the carpenter, the blacksmith, or the money changer. A very large share of our experiences consists in making measurements, and although we do not always use the micrometers or the surveyor's chain, the fundamental idea that lies at the base of all our calculations and speculations is one and the same. Just to the extent that we are accurate in our measurements, whether applied to things material or immaterial, to that same extent are we successful in attaining that for which we strive. Qualitative relations, too, are necessary, but the final test is quantitative accuracy in the product. Within certain limits, at least, the more accurate it is the greater value it possesses. The testimony of the chemist who proves the presence of arsenic in the body of the supposed victim of poison possesses a certain value, but its value is immensely enhanced, if the chemist is able to prove that the quantity is sufficient to cause death. Spencer

points out the fact that the much admired Discobolus, as it is posed, must fall forward the moment the quoit is delivered. A reasonably accurate mental weighing of the parts of the figure would have spared the blunder, and added much to the effectiveness of the artist's conception. Astronomers before Kepler knew much concerning the positions and motions of the members of the solar system, but it was left to Kepler to demonstrate that certain of those facts could be weighed and balanced, and synthesized into the great "harmonic law." That is, the established quantitative relations, the effect of which is to fill the mind with wonder and put us a step nearer to that grandest of all conceptions, that this is, indeed, a universe under the control of the laws of the Absolute.

The value of right habits in accurate determinations can scarcely be overestimated. This belief found expression in the report of the Committee of Ten in the shape of a recommendation that laboratory work in physics should be largely quantitative. All the more recent text-books and laboratory manuals on chemistry show the same tendency. But much as we believe in the value of quantitative work, a note of warning may not be out of place, for there is something more than a possibility that the process may be carried too far. The principal of one of the largest New England high schools wrote me a short time ago, that no subject in the curriculum was so thoroughly detested as the physics work required for entrance to Harvard, and that there were more failures in that subject than in all the rest put together. He thought that, by reason of the extreme quantitative methods required, all the life and soul had been taken out of what was once a most fascinating study. The all-important question to be asked of a candidate for admission to college should not be: have you read the *Anabasis*, or mastered Remsen's *Briefer Course*, but have you arrived at a certain stage in the development of those powers which God has implanted in you? The particular road the student has traveled is of little moment. The important fact to be ascertained is that he has or has not reached a certain point. The multiplication of the

courses of study in the secondary schools ; the growing disposition to permit greater freedom of choice in the earlier years of the college course ; the more general acceptance of the doctrine of the substantial equivalence of studies having the same time allotment ; the constant insistence that the teachers must be better prepared for work in the secondary schools ; all these point to the same general conclusion, viz., that the question which should confront the applicant for admission to college is not what have you studied, but how well ? This does not mean that the pupil in the preparatory school is to have absolute choice. While I find it difficult to accept, without reservation, the doctrine in the report of the Committee of Fifteen, that any subject worthy of a place in an educational scheme may be placed in one of the five categories defined in that document, I do believe that representative studies from each of those five categories should be found in the required part of every secondary-school programme. The omission of any one of these groups, as Dr. Harris has said, "will distort the pupil's view of the world." But within those groups a wide range of choice should be permitted, so that, the individual needs of the pupils may be subserved. By the way, the courses of study adopted by the New York City high schools are most admirably arranged to meet this very need. All this means, so far as it relates to the subject under discussion, that the secondary schools believe that, good work done by them in science, as well as in other subjects, should be accepted by the colleges as a part of the entrance requirements.

One more point and I am done. No word in the language is more abused than the word culture — unless it is that most inclusive of terms, professor. In the war that has raged for years it is not singular that each of the contending parties should seek to establish its claim to a measure, at least, of the best that resides in the other. The exponents of the scientific method as used in natural science work have made, oftentimes, what seem like most extravagant claims as to the culture value of science. On the other hand the members of the aristocracy of culture

have not considered it beneath their dignity to hold that the scientific method is even more applicable to the classics than to the natural sciences. The one claims a monopoly of the scientific method with all accruing benefits including a large share of culture; the other has appropriated and holds as its own the culture of the world, and has used in acquiring it the true scientific method.

The truth probably is that both are right and both are wrong, as is usually the case in such contests. "There is a cant of science as well as a cant of the classics." When Dr. Worship-the-past is at his best an ideal culture secured by and through the scientific method is the rich and varied product. But when the doctor is at his worst, and this happens no one knows how often, both culture and the scientific method are relegated to the storeroom. When the scientific Dr. Up-to-date is at his best the scientific method in action is a marvel of beauty and precision, and real culture grows apace. But when the doctor is at his worst, and he is in this respect a worthy rival of Dr. Worship-the-past, the voice of nature, the music of the spheres is drowned in the noise of the tom-tom, and the name of culture has become a by-word. That is to say, the factor that must never be left out of account in estimating the culture value of any subject, is the personality of the teacher.

Science teaching to yield a worthy culture must be something more than a series of showy and haphazard experiments; but it is also true that Latin teaching must rise above the mere grinding of paradigms, or mechanical and barbarous translations. President Jordan has said: "As volition passes over into action, so does science into art, knowledge into power, wisdom into virtue." Ideally, yes; practically, sometimes. I do not know; but this I do believe most firmly: whatever your definition of culture, there should be in anything worthy of that name a dynamic element which is best derived from a rigid adherence to methods of verification of results. This begets a firm belief in the validity of the deductions resulting from one's individual experience. The student thereby comes to believe in the reign

of universal law. When he arises to this conception, then, and not till then does he fully realize the necessity of obeying the laws of God and man. There are those and their name is legion, who really think that it doesn't matter very much whether we do right or wrong. They observe that evil sometimes goes unpunished, that the apparently good are not always happy. Such persons lose, or never gain, a proper respect for law either civil or moral. They are non-ethical chiefly because they have never risen to the conception of the universal reign of law. This conception need not, it does not, destroy feeling, it is complementary to it. It is not external to culture, a mere corrective, though it does correct. It is, or ought to be, a part of culture. This completeness of result, many of us believe, can be best secured by giving a fair proportion of time in secondary schools to experimental science.

C. C. WILSON

JERSEY CITY, N. J.

DISCUSSION

PROFESSOR E. G. CONKLIN, University of Pennsylvania: With most of the positions taken by those who have immediately preceded me I entirely agree. There are, however, some propositions with which I would take issue and still others which seem to me to demand even greater emphasis than has been given them.

In his fourth thesis Professor Tarr points out a truth which at this time needs to be presented frequently and earnestly. The colleges with relatively few exceptions do not properly recognize the science work done in the preparatory schools. Even in some of our largest universities there are no entrance requirements in science, and in a great number of higher institutions of learning these requirements are ridiculously small. The present attitude of all such institutions is one of positive discouragement to scientific teaching in the schools. There is, of course, a great deal of so-called science work in the schools which cannot be recognized by the colleges; but anyone who will take the pains to acquaint himself with the science work which is being done by the larger high schools, especially in the East and middle West, will be ready to testify that such work is worthy of being

recognized by the colleges. In fact it seems to me that there is a dangerous tendency on the part of such schools to offer work of too high, rather than of too low grade. On the other hand there is a great deal of poor and inadequate science teaching in some of the schools; this is pretty largely confined to the private preparatory schools and to the high schools of the smaller cities and towns. The excellent courses in science offered by the larger high schools are in no sense the result of the fostering influence of the higher institutions of learning; they are due to the fact that such schools have cut free from the colleges and are offering courses which meet the demands of their patrons. On the other hand the colleges are directly responsible for the deficiencies in the science work of the preparatory schools. A few of the leading universities of the country have taken some very practical steps to right this wrong (for I consider any system of education which neglects science as intellectually and morally wrong) and it is only a question of time when all our higher educational institutions will do likewise. As science teachers in the schools and colleges we should demand without ceasing that, in the entrance requirements, science shall be granted all the rights and privileges of the most favored subject. If three years of science work cannot be added outright to the entrance requirements, I should endorse the suggestion made by Professor Wilson that certain well-taught sciences be taken in lieu of other required subjects for admission to college.

In his fifth thesis Professor Tarr states that there is still much pseudo-science taught and that no claim can be made in its behalf. The same thing could doubtless be said of any other general subject. However, even pseudo-science, *i. e.*, science which is imperfectly taught, is better than no science at all. Apart from the method of science, its matter is of such value that it seems to me worth while to teach it in a poor and imperfect way, rather than to omit it altogether. I maintain that even text-book science is better than none, and while I should be opposed to accepting such work for admission to college, I feel that there should be no attempt to "eliminate" such work except by the process of substituting something better.

Another subject to which I wish to call attention is presented in Professor Tarr's theses Nos. 9 and 10. Whatever the consensus of opinion may be, it seems to me that the purely observational sciences ought in every case to precede the experimental. For that reason natural history is one of the very best subjects with which to begin.

Physical geography, if made really observational, is equally valuable. There has been of late a growing tendency to regard natural history as a sort of amusement, rather than as a serious and dignified study. The fact that experiment is one of the most important methods of science has apparently led some persons to the view that all science teaching should begin with experiment. However, science is no less observational than experimental, and it is observation rather than experiment which earliest appeals to the developing intellect. I have found no subject quite so interesting to children as natural history, and in the hands of competent instructors I believe none would be more useful. As things now are, young persons are introduced to science through the medium of test tubes, instruments of precision, dissecting instruments and microscopes. What influence premature experimentation may have on the advanced study of chemistry and physics, I cannot say, but in biology it results in a generation of young persons whose only ideas of beauty, variety, and life-conditions of the living world are derived from the dissection of five or six plants and animals. I would greatly prefer to have a student come to me for advanced work in zoölogy, knowing something about the habits and life-histories, the external morphology and classification of a large number of animals than to have one who knew only the digestive, circulatory, excretory, and nervous systems of five or six forms. And this order of presentation would be the best for the student whether he ever pursued advanced subjects in biology or not. In all cases natural history should precede anatomy, histology, or embryology, and I think it might well precede any other science. Physiology as commonly taught in the schools, *i. e.*, without laboratory work, might much better be replaced by natural history, which, when properly taught, would contain all that part of physiology which could be brought under direct observation without the aid of special apparatus.

This tendency on the part of preparatory schools to take up the more advanced subjects of any science and omit the more elementary ones leads me to the consideration of Professor Wilson's theses Nos. 4, 5, and 6. There seems to be a perfect craze for specialization in these times. There was a time when some persons looked with misgivings upon the tendency to specialize in the college, and I think that even now most educators would agree that it is not wise to begin to specialize as early as the freshman year, and certainly not before that time. Under existing circumstances I believe that the high schools

and preparatory schools would better fulfill their functions to those who go to college and to those who do not, if they were to devote a year to each of several sciences rather than several years to any one science. Even two years of any one science would necessitate the crowding out of some other important one, and this I feel ought not to be done. The physical sciences are so interdependent that one cannot properly understand one without some knowledge of the others, and it seems to me that physics, chemistry, biology, and perhaps also the earth sciences, as Professor Tarr¹ has suggested, should each be given one year in every well equipped preparatory school. I acknowledge the cultural value of *intensive* work, but in the preparatory schools we must have *extension*:—if not here, where will it be had? If young men and women are to be prepared not only for college, but also to take an intelligent interest in the world in which they live, it is necessary that they have the broader rather than the narrower training; and if the devoting of two years to chemistry, or physics, or biology, involves, as it does, the dropping of some other subject, it seems to me that it would be a very unfortunate thing to do. As teachers, I suspect that we are all guilty of exalting our subject and forgetting other subjects, of striving to meet the needs of an ideal curriculum rather than those of the actual student. We forget that the things which are of most value to us may not be most valuable to our pupils. It frequently happens that teachers, fresh from the universities, attempt to import university method into preparatory schools, to open university courses, journal clubs, seminars and research work for elementary students, while at the same time the fundamentally important elementary work is neglected. So far as the subject of biology is concerned, I believe that this is largely due to the fact that teachers have had no adequate training in the more elementary subjects, such as natural history; they come up to the colleges and universities without any such training and they do not get it in these higher institutions of learning. It has sometimes seemed to me that the only remedy for this state of affairs is for the universities to exchange places with the preparatory schools; certainly the higher institutions must take up this elementary work if they are to fit teachers for the preparatory schools. If there is time for specialization in the preparatory schools after these necessary foundations have been laid I for one should not object, but I do object to any system which builds from the top down.

¹ Professor Tarr's paper was published in the *Journal of Pedagogy*, January 1898.

ENTRANCE REQUIREMENTS IN ENGLISH

PROFESSOR STODDARD : The committee appointed two years ago to report on books for entrance examination for the years 1901-2, wishes to present a report of progress. The full report is not given at the present time because the committee has still to be represented at a general conference of all the associations of the country to be held in Philadelphia in December of this year. The partial report, as presented, is an extremely conservative one, maintaining practically the system which has been in effect for the last two or three years, and with very slight changes in the books read and studied. Although it is essentially conservative, it has not been arrived at without very serious and continuous deliberation—being based upon the reports sent to the committee from nearly all of the colleges and many of the preparatory schools concerned in this work, in all the states of the Union. It is based upon very elaborate reports from various institutions, particularly from the regent's office at Albany, which rendered very great assistance to us; based upon the conference held in New York in May, at which delegates attended from the association of the northwestern states, from the association of the southern states, from the association of the New England states, and from this association. In presenting this report I may, perhaps, add that I think the members of the committee are wholly in accord with all suggestions of Dr. Sachs in his remarks yesterday, and, furthermore, that the recommendations of the committee indicate a minimum only, with the hope that most colleges and many preparatory schools, will be able to largely increase them.

REPORT OF THE COMMITTEE ON ENTRANCE REQUIREMENTS IN ENGLISH

The committee recommends that the books set for reading and practice, for the years 1901 and 1902, be the following :

Shakespeare's *The Merchant of Venice*; Pope's *Iliad*, Books I, VI, XXII, and XXIV; the Sir Roger De Coverley Papers in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe*; Cooper's *The Last of the Mohicans*; Ten-

nyson's *The Princess*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

That the books set for study and practice, for the years 1901 and 1902, be the following:

Shakespeare's *Macbeth*; Milton's *Lycidas*, *Comus*, *L'Allegro*, and *Il Penseroso*; Burke's *Speech on Conciliation with America*; Macaulay's *Essays* on Milton and Addison.

That there be inserted at the end of the statement of the requirements for reading and practice the following sentence:

"In preparation of this part of the requirement, it is important that the candidate shall have been instructed in the fundamental principles of rhetoric."

That there be inserted at the end of the statement of the requirements for study and practice the following sentence:

"In addition, the candidate may be required to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong."

The committee believes that, so far as is practicable, colleges should require clear and idiomatic English in all examinations papers and notebooks written by candidates for admission. Teachers are requested to insist on the use of good English as an essential part of the pupil's training in his translations from foreign languages, and in whatever he writes or speaks on any subject in the school course.

FRANCIS H. STODDARD
GEORGE R. CARPENTER
WILSON FARRAND

[Limitations of space prevent our publishing these valuable discussions in full. The complete report will soon be issued, edited by Professor Dana C. Munro, the secretary of the association, who has also edited the matter here presented.—Ed. SCHOOL REVIEW.]

NOTES

ON MARCH 31 and April 1 a Classical Conference will be held at Ann Arbor, Michigan, under the auspices of the Committee of Twelve of the American Philological Association. The object of the conference is to bring together representatives of the schools, colleges, and universities in the different parts of the country for the discussion of questions pertaining to classical studies and for the presentation of matters of interest to classical teachers. The "Preliminary Report" of the Committee of Twelve will be discussed, and there will be reports upon the work of the Archæological Institute of America as well as of the American schools at Athens and at Rome, besides a number of papers presenting the results of investigation and dealing with subjects touched upon in school and college Greek and Latin work. Among the prominent classical scholars who will appear on the programme are Professor John Williams White, of Harvard University; Professor Thomas D. Seymour, of Yale University; Professor Andrew F. West, of Princeton University; Professor Alfred Gudeman, of the University of Pennsylvania; Professor Minton Warren, of Johns Hopkins University; Professor Abby Leach, of Vassar College; Professor Harold North Fowler, of the Western Reserve University; Professor Austin O'Malley, of Notre Dame University; Professors William Gardner Hale and Paul Shorey, of the University of Chicago; and Professor Charles Forster Smith, of the University of Wisconsin. Among the numerous representatives of secondary education, it will be sufficient to mention Principal C. F. P. Bancroft, of the Phillips Andover Academy; Superintendent A. F. Nightingale, of Chicago; Dean Charles H. Thurber, of the Morgan Park Academy; State Inspector of High Schools George B. Aiton, of Minneapolis; and Dr. Richard A. Minckwitz, of the Kansas City High School.

There will be reduced rates upon the railroads from all points in the territory of the Central Traffic Association and Trunk Line Association. According to present indications the attendance at the conference will be large, and the gathering will be one of unusual significance. A cordial invitation to be present, and to take part in the discussions, is extended to all teachers of Latin, Greek, and ancient history, and to all others interested in classical studies. Copies of the programme, and detailed information, will be furnished on application to Professor Thomas D. Seymour (Chairman of the Committee of Twelve), Yale University, New Haven, Connecticut, or to Professor Francis W. Kelsey (chairman of the local committee), Ann Arbor, Michigan.

